

This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

















THE

AMATEUR GARDENER

BY THE

REV. HENRY BURGESS L.L.D

CURATE OF ST. MARY'S BLACKBURN;
EDITOR OF THE JOURNAL OF SACRED
LITERATURE &c



EDINBURGH: A & C BLACK.

THE

AMATEUR GARDENER'S YEAR-BOOK.

A GUIDE FOR THOSE WHO CULTIVATE THEIR OWN GARDENS,

IN THE

PRINCIPLES AND PRACTICE OF HORTICULTURE.

BY

THE REV. HENRY BURGESS,

LL.D. AND PH.D.,

MEMBER OF THE ROYAL SOCIETY OF LITERATURE.

EDINBURGH:

ADAM AND CHARLES BLACK, NORTH BRIDGE.

MDCCCLIV.

191. c. 20.

EDINBURGH:

PRINTED BY R. AND R. CLARK.



PREFACE.

THE substance of the following pages appeared in the Gardener's Chronicle during the years 1846-9. The papers were written at the request of Dr. Lindley, the editor of that valuable journal, and were intended to interest and instruct the very large class of persons of both sexes, who, from their love of the art, cultivate their own gardens. It was thought that the experience of an amateur, acquired in a garden of considerable extent and variety, conveyed not in dry rules and details, but in a style possessing some literary character, might be profitably exhibited to those similarly situated with himself, and tend to foster and increase a taste for a refining and healthy employment. While it is believed that this end was secured by the weekly circulation of the papers in the pages of the Chronicle, its character as a journal gave them only a transient influence.

They have long since been out of print, and, on this account, the proprietors of the paper have kindly consented to place them at the disposal of their author, that he might endeavour to make them more permanently useful. With many alterations and additions, they are now submitted to the lovers of horticulture in a separate form.

This volume, then, is a collection of essays on the theory and practice of gardening, in which almost everything necessary to be known is familiarly explained. An application to the copious Index at the end, and to the Calendar prefixed to the several months, will generally furnish any required information. But still the nature and size of the work forbid the idea that the subject can be exhausted, or every topic fully treated, within the compass of its pages. A more professional and detailed treatise on general gardening should accompany what is here furnished, and a small but comprehensive volume of this character, published by Messrs. Black, can be confidently recommended as supplying all supplementary information.*

* The Fruit, Flower, and Kitchen Garden. By the late Patrick Neill, LL.D., &c. Fifth Edition, improved with Additions, price 5s.

It will be found that, in a few cases, the information furnished under one month is repeated in another, although in different language. This has been thought desirable, both on account of the importance of the particulars thus dwelt upon, and because the whole work has the form of a monthly calendar. The details of one month are often appropriate to the next, and it is better to have instruction reiterated, than to fail of finding it in the place where perhaps it is most wanted.

These papers were all written in the midst of the scenes and pursuits they describe, and are strictly the result of the author's own experience. They are the records of some of his happiest hours, when harassing duties were lightened by a love of natural objects and floral occupations. He hopes that the collected volume will enable many to find the unalloyed pleasures which the cultivation of a garden has so often conferred upon himself.

St. Mary's, Blackburn, Lancashire,
June 1854.

CONTENTS.

INTRODUCTORY OBSERVATIONS.

Page

1. The Amateur Gardener 1
2. Necessity of Labour 6
3. Universality of Gardening Pleasures . . . 10
4. Importance of First Principles 14

JANUARY.

The Calendar 18
1. On Laying Out Small Gardens 19
2. Miscellaneous Remarks on Laying Out Gardens . 22
3. General Directions for January 25
4. Prospects of the Spring 27
5. Bulbs in Windows 30
6. Work to be done after a Thaw 34
7. Manures 35
8. Gooseberries and Currants 38

FEBRUARY.

The Calendar 42
1. Treatment of Plants in Pots—Principles of Repotting . 43
2. Soil for Potting Plants 46
3. The Operation of Potting 49
4. On the Ranunculus 52
5. Planting the Ranunculus 55

Page

6. Ranunculuses—Choice of Sorts 59
7. Potatoes 62
8. On the Management of a Hotbed Frame . . 66

MARCH.

The Calendar 71
1. On the Culture of Annuals 72
2. Window Flowers 75
3. Rhubarb 77
4. On Seed Sowing. 81
5. On the Choice of Flowers 83
6. On Neatness in Gardening Operations . . . 86
7. Roses 89
8. The Dahlia 92
9. Insects 94

APRIL.

The Calendar 99
1. Exotics for Beds on Lawns 100
2. Carnations and Picotees 103
3. Treatment of Plants intended for Bedding Out . . 107
4. A few words on the Kitchen Garden . . . 109
5. Treatment of Window Plants during Summer Months 112
6. Weeds and Weeding 114
7. Scarlet Pelargoniums 117
8. Cats 119
9. Treatment of Plants in Pots 121
10. A few remarks on Roses 124
11. The harmony of Nature 126

MAY.

The Calendar 128
1. On "Bedding Out" Tender Flowering Plants . . 129

Page

2. Planting the Beds for Summer 132
3. Asparagus 134
4. The Green Fly 137
5. Strawberries 140
6. Gardening an Intellectual Occupation . . . 143
7. The Gardener's Enjoyment of Spring . . . 146
8. Hiving a Swarm of Bees 149
9. The Ranunculus 152

JUNE.

The Calendar 156
1. Hints on the General Management of the Flower-Garden 157
2. Recreation 159
3. Clearing up for Summer 162
4. Flower Shows 165
5. General Management of the Flower-Garden . . 173
6. Roses 174

JULY.

The Calendar 177
1. Propagation of Pinks, Carnations, and Picotees . 178
2. Propagation of Pelargoniums 181
3. On Preserving Bulbs, &c. 183
4. Reserve Bed for Window Plants . . . 186
5. Dahlias 188
6. The Failure of Roses 191
7. Celery 194
8. Winter Greens and Broccolies 197
9. Propagation of Plants for next Season . . . 199
10. Cut Flowers 202
11. Propagating Roses by Cuttings . . . 205
12. On Filling Vacancies in Flower Borders . . 207

AUGUST.

Page

The Calendar 210
1. On Budding Roses—when necessary . . . 211
2. On Budding Roses, Stocks, and Mode of Operation . 214
3. On Budding Roses—Miscellaneous Directions . . 218
4. The Greenhouse 221
5. Results of Experience 224
6. On Preparing for Next Year's Flower Garden . . 227
7. Culture of the Chrysanthemum . . . 230
8. Treatment of Cactuses in Windows, and in the Open Air 233

SEPTEMBER.

The Calendar 237
1. Culture of Bulbs in the Greenhouse or Window . 238
2. Spring Bulbs in the Open Air 243
3. Carnations and Picotees 249
4. Preparations for Winter 252
5. On Planting 258
6. On Planting 262
7. Culture of Strawberries 266

OCTOBER.

The Calendar 270
1. Autumnal Arrangements 271
2. Raspberries 276
3. Window Flowers 279
4. Roses 281
5. Vines 285
6. The Study of Botany 288
7. Autumnal Management of the Garden . . . 292

NOVEMBER.

Page

The Calendar 296
1. Last Words on Bulbs 297
2. Preserving Plants in Winter 303
3. Dahlias 306
4. General Treatment of the Soil previous to Winter . 308
5. On Laying Out a Kitchen Garden . . . 311
6. The Azalea 314

DECEMBER.

The Calendar 318
1. Evergreens 318
2. Out-Door Protection from Frost . . . 322
3. Protection of Kitchen Garden Crops . . . 325
4. Fruit Trees 327
5. Our Duties to Gardeners 329
6. The Spade and the Fork 332
7. Christmas Flowers 334
8. The Close of the Year 336

The Florist's Farewell to the Year . . 342

THE

AMATEUR GARDENER'S YEAR BOOK.

Introductory Observations.

I. THE AMATEUR GARDENER.

"Nor would he scorn to stoop from high pursuits
Of heavenly truth, and practise what she taught.
Vain is the tree of knowledge without fruits.
Sometimes in hand the spade or plough he caught,
Forth calling all with which boon earth is fraught."

Castle of Indolence.

Most men have felt a momentary blush of shame when asked to defend pursuits which administer more to taste and refinement than to pecuniary profit. In this mercantile country, one is often tempted to repudiate occupations which give health to the body or improvement to the mind, because the sordid deride them. In this respect the world has not improved since Greece was pre-eminent in civilization, for I presume her sons loved nature and cultivated art for their own sakes, without being required to demonstrate their bearing on the acquisition of money. Englishmen should guard against this lower use of the *cui bono* argument, and

concede that a man may be honourably and profitably employed without having the slightest reference to the increase of his substance. In the sweet season of infancy, when the laws of nature refuse to succumb to conventional notions, who will deny the immeasurable importance of pursuits which have not the remotest relation to pelf?

I have watched with great interest for some years the movements of a horticultural society in a flourishing country town, and have often been surprised at the difficulties with which it has had to contend, from the prevalence of this habit of estimating everything by its pecuniary return. A scheme for a gas-house, a railroad, or a town-hall is eagerly embraced, because each will yield, perhaps, an interest for the money invested; but a horticultural society is placed in a different category. It is true its shows are attractive; that fellow-townsmen find their harmony promoted by its meetings; that a taste for the innocent and the beautiful is fostered by its influence; that the labouring classes are taken from low and injurious pleasures by its exertions—all this is conceded; but there is no money return, except to the successful candidates for prizes, and therefore it cannot be warmly espoused. A few kindred spirits, by dint of influence and careful canvassing, get up a subscription-list sufficient to keep the society in existence; but a conviction is always forced upon its promoters, that a love of gardening has yet to be formed, and that nature's beauties, although praised, are thought worthy very little time, attention, or money.

Now, the situation of this horticultural society will

illustrate my meaning, when I say that the amateur gardener feels a momentary blush when called upon to defend his pursuits. The possessor of acres of pleasure-ground would never have this feeling, for no one would laugh at him for his expensive tastes, associated as they are with high life and with wealth. But the owner of a garden a few yards square, to which he devotes his mornings and evenings, often becomes sport to the thoughtless for his attachment to his humble Flora. In his heart he knows that he is right, for he feels ennobled by his blameless occupation; but he is often at a loss to defend himself against the bluster of ignorance, and the heartlessness of mere money-makers. When a friend says, "Your cabbages must cost you a shilling a-piece, if your labour is taken into account; and your roses, judged by the same rule, are each worth half-a-crown," and evidently thinks he has employed an irrefragable argument, the modest cultivator scarcely knows how to retaliate. The fact is, it is difficult to balance taste against the want of it, or mental pleasures against such as are more sordid; and if I can assist the amateur in defending himself, and confuting his antagonist, I shall probably be of service to him. It is well for the judgment to go hand in hand with the heart, and to be able to show a good reason for the love of gardening and flowers.

Perhaps my advice and reasoning may be better received if, in a slight autobiographical sketch I can establish a claim to experience and knowledge of the subject of which I write. I am then like, I presume, many of my readers, an amateur gardener. My prac-

tice in this art dates back as far as a quarter of a century, when in the suburbs of London I had a little plot in the garden of my father, made little hotbeds of his stable manure, and gloried in the production of a pungent Radish or an abortive Cucumber. Ignorant country people may sneer at the mistakes of cockneys as to rural pursuits; but who can disparage with justice their love of gardening and flowers? The Mignonette in a broken pan, or a Hyacinth in a blacking-bottle, which may be seen in London's darkest streets, and the Ward's cases in the drawing-rooms of its wealthier citizens, furnish sufficient proof of the floral tastes of the largest city in the world; and I can testify that, in my boyish days, a love of gardening filled the hearts of multitudes of urchins within the sound of Bow-bells. Since that time, my occupations have been those of the wits, not of the hands. At one period, an engrossing affection for literary pursuits threatened my health, and rendered a return to the recreations of childhood necessary, as the means of securing a right mental and bodily state, *mens sana in corpore sano.* I took to gardening with a heartiness and love which made its labours pleasant, and its successes delightful. Many persons will tell you they love flowers, who love only to look at them, but would rather see them die than give them a re-potting, or even a careful watering. I did not pursue the craft in this way. I endured the labour that I might enjoy the triumph of success. The preparation of a Ranunculus bed in the winter season; the turning over the soil again and again, that the whole might be mellowed by the frost; the back-aching work

of planting in February; the pressing down the soil around every individual plant as it appeared above ground; all this I have done, and been amply rewarded by the exercise itself, but especially when, in the month of June, my bed has developed the matchless charms of these delicate *élèves* of Lightbody and Tyso.

In these pursuits health has been secured, and peace of mind promoted. A hard ride has been said to be the Englishman's remedy for melancholy, nor is it to be undervalued; but having tried both I give the preference to gardening. You are the world's citizen when under the blue vault, or even the hazy mantle of heaven; the hands labour, and the mind wanders among sweet sights and sounds. You may have trouble, but, with a love of nature, there will be "the smile and the tear in your eye." I will not promise you sunshine; but I will guarantee that, in the culture of the ground, your spirit shall be at least like the rainbow, glad though sorrowing. Having caught the inspiration of the winter frost and the summer breeze, and wooed nature in all her retreats, let me tell you my experiences from the digging of the soil to the securing the crop—from the potting a choice plant to the bloom. Some years ago I should have been glad of such a guide as I am anxious to become to the aspirant for floral joys and honours. From the compost-heap to the preparation of a flower for exhibition, through all the various steps of the process, I hope to lead you on, and to make you feel, in the spirit of Thomson's lines, that in such pursuits you are far from descending in the scale of existence, but may rather become a wiser and a better man.

II. NECESSITY OF LABOUR.

"Nor does he govern only or direct,
But much performs himself. No works, indeed,
That ask robust, tough sinews, bred to toil,
Servile employ; but such as may amuse,
Not tire, demanding rather skill than force."

COWPER, *The Garden.*

Gardening, in all its branches, demands the exercise of an active industry, and as much self-denial as an industrious habit will be willing to practise. By self-denial I mean that which is deemed such by the luxurious or the slothful, and by the very large class of persons who have an abhorrence of labour. To those who exercise it, it becomes a source of a high degree of pleasure; so much gratification, indeed, is afforded by the toils of gardening, that we have long entertained a conviction that corporeal labour is a natural provision for man's happiness. When intellectual pursuits alone are followed, or when life is spent in a round of easy and fashionable employments, it will be found that a healthy state is rarely maintained. But field sports, and husbandry, and gardening, seem necessary to those who have not to labour for a subsistence, and are admirable preventives of sickness, and set *ennui*, and dyspepsia, and hypochondriasis, at defiance.

I have heard of some devotees of Flora who have taken the blankets off their beds to preserve their favourites from the destructive influence of some unexpected frost. We generally laugh at such conduct, and call it enthusiasm or folly; and most persons would

be unwilling to get up in the night to protect a collection of flowers. But, happily, ridicule is not the test of truth; and I am of opinion that the amateur who would occasionally deny himself sleep or a blanket, rather than lose a choice flower, has reason on his side. Let us see who those are who would jeer at such a course, and it will be easy to employ against them, with success, the *argumentum ad hominem.* One of them may be a lover of hunting, and he would not refuse to pass a sleepless night to save the life of a sick horse; another may be a prosperous man of business, who would turn night into day to execute a profitable order. Things become valuable, because skill, and time, and labour, are expended on them, and money is only the exponent of that expenditure; if, therefore, a florist has devoted his energies to some plants during the summer and autumn, they have a money value to him, if not to others, and he is as reasonable in making sacrifices to preserve the product of his toil as any other man. I have mentioned an extreme case to illustrate my principle, that labour and self-denial are demanded in floriculture. In the cold evenings of winter, the greenhouse, the frames, or the window plants must not be forgotten. If you have love enough for your pursuit to leave a cheerful fire in the evening, and throw down your cigar, to cover up that which you know will require protection before morning, you have then the right degree of enthusiasm, and may be admitted to a fellowship in the Royal Society of Philosophic Gardeners.

How often have I been vexed and ashamed of my-

self when a love of ease has led me to give up to the chances of a bright starry night in the winter, some pots of flowers which have only been placed in the open air to catch the influences of a day unusually mild. Indolence has suggested, "It will not freeze;" and the pots have been left till the morning. Then the penalty is paid for sloth, when a collection of Chrysanthemums, for instance, which have been attended to daily for six months, hang their beautiful heads in hopeless prostration! Whole greenhouses have sometimes been given up in this way to the blasting of the frosty king. The night being mild, no fire has been kindled. Towards morning there has come a nipping frost, and glazed every leaf and succulent branch in the house, and the only chance of safety has been in securing a gradual thaw, by matting up all the windows. The amateur has seen the fantastic figures of the frost upon his bedroom windows, and known the position of his plants, but sleep has been too attractive for him. He flatters himself there will be time to prevent the mischief if he rise at the ordinary hour; but Phœbus gets the start of him, and pouring his golden rays upon the frozen leaves, irrevocably destroys them. In such cases we should ask ourselves which sacrifice is the greatest, that of self-denial, as it is called, which exhibits itself in a temporary disregard of ease and comfort, or that of self-reproach, which visits us as we look upon the permanent consequences of our neglect.

I have referred to what the devoted gardener must sometimes do, if he has not professional servants to do it for him; but such labours are only occasional, and

may be often rendered unnecessary by forethought. The ordinary and every-day toil will be its own reward, and at length will become almost necessary to happiness. Even the winter season presents attractions to the true lover of gardening. A novice will find it shivering work at first, to go out on a dull, cold, November day, to look over the pots in frames, or to plant a new Strawberry bed. But let him persevere. Defend your feet with good waterproof coverings, and put on a stout gardening overall, and commence operations courageously. You will soon forget the cold; your cheeks will glow; your eyes and ears will open to a hundred sights and sounds which the denizen of the house knows not the existence of.

> "No noise is here, or none that hinders thought.
> The redbreast warbles still, but is content
> With slender notes, and more than half suppress'd;
> Pleased with his solitude, and flitting light
> From spray to spray, where'er he rests he shakes
> From many a twig the pendent drops of ice,
> That tinkle in the wither'd leaves below.
> Stillness, accompanied with sounds so soft,
> Charms more than silence."—*Cowper*.

Away will fly all melancholy thoughts, and the season which some poets have spoken of as the funereal time of the year, will develope an infinitude of nameless charms. From such healthful pursuits we return to the social circle with enhanced delight. We detail to the "gude wife," and to the "expectant wee things," the labours we have accomplished, and feel that the primitive curse has, by a kind providence, been turned to a blessing. Nor should the fair sex scorn such occupations, when-

ever the weather allows them to go forth. Let them see that their favourite tender Roses are defended from the coming winter; that plants of Thyme and Sage are provided with some temporary shelter against the blasts of the east, and in other ways either garden themselves or direct their gardeners, and if their cheeks do not mantle with a rosy hue I shall be sadly mistaken.

III. UNIVERSALITY OF GARDENING PLEASURES.

Of all the pursuits which are presumed to tend to the improvement of the mind and the heart of man, gardening will yield to none, when regulated by the principles of reason and sound taste. The ground may be dug, seeds sown, and flowers and vegetables produced by brute force and the lowest kind of handicraft, as is doubtless the case every year in thousands of instances. There is a voice in nature which some are too obtuse and besotted to hear, but which is sweetly modulated to the organ of thoughtful observers. For such every season has its charms. The furious winds and driving snows of winter are gracefully instructive to them, while the sweet gales and diffused perfumes, and varied beauties of spring and summer, delight the senses and the imagination. Such results being in part dependent on culture, the faculties of the understanding are called into exercise, and the manipulation demands healthful bodily exertions. Gardening, in this manner, benefits

and pleases our various bodily and mental powers, and enables us to make joyous scenes more bright, and to beguile hours of sadness.

If horticultural pursuits required the open country, and could not be successfully cultivated in the vicinity of towns and cities, the greatest part of human beings would be debarred from the pleasures just referred to. But this is not the case; for there are few spots, even metropolitan alleys and back windows not excepted, which Flora refuses to honour. The broken bottle or water-jug of the poor, turned into a flower-pot, will grow fine Wallflowers and fragrant Mignonette even in St. Giles' and Rosemary Lane; and therefore the multitudes who have little gardens before or behind their houses, must possess comparatively rare advantages. To make these small domains as conducive to pleasure and ornament as possible, should be the object of their possessors, and in many cases they are admirably successful. Neglected grounds of this description are often the consequence of low habits in their occupiers, but quite as frequently they lie almost waste, because the knowledge requisite to make them beautiful is wanting.

The lovers of gardening may be classed into two kinds, with reference to the degree of attention they pay to actual cultivation. Some persons admire but do not work, others both work and admire. The former may incur great expense in the gratification of their tastes, and find real enjoyment in seeing the results of the labours of those they employ; but the latter are the genuine amateurs, who undertake at least the nicer

manipulations themselves, and whose reward is always commensurate with the degree of care and attention bestowed. The enthusiasm of such devotees to Flora may sometimes border on folly, as when a passion is formed for one particular flower to the neglect of all others; but, in general, they are a race of sensible beings, who drive dull care away, and promote health and happiness by their pursuits. A very large garden is less advantageous for the production of such a character than a small one, since the attention is more divided, and the labour of others is more needed, in proportion as the grounds are extensive. This is the reason there are so many amateur gardeners in the vicinity of crowded cities. A man of respectable income, in such localities, must be contented with a small garden; but in proportion to its diminutiveness will be the art employed to make it attractive.

Those who are acquainted with the neighbourhood of London, well know the vast difference which exists between the back regions of houses inhabited by those who love gardens, and such as belong to people not troubled with tastes for natural beauties. Suppose two little villas similarly situated, with about ten poles of ground attached to each. The inmates may be precisely alike as to property, and yet the one plot will exhibit a wild and ragged appearance, rendering the name of garden a misnomer when applied to it, while the other will display the most consummate art in its arrangements, and contain within its narrow boundaries an amount of beauty almost incredible. The contrast between the fronts of these houses will

be almost as great, for the lover of gardening will be sure to exhibit his treasures to those who pass by, and the Hyacinths and Van Thol Tulips in winter, and the pots of various greenhouse plants in summer, will attest the zeal of the parties who dwell within. A higher degree of respectability is the least advantage conferred on the cottage of the amateur gardener. The tone of every member of the family is improved, and a degree of real refinement is secured. If the home of a labouring man is associated with conceptions of greater morality and integrity, when it is known that he is a gardener in his leisure hours, by the same rule the dwellings of the middle classes are presumed to be more happy when the master and the father occupies his spare time in the cultivation of flowers.

But why have I alluded only to the master? Have the mistress and her daughters no share in the labours and pleasures of the suburban garden? Shame would it be to entertain a notion so remote from the truth. The retiring habits of ladies make them turn to flowers with an almost instinctive love, and dispose them to fill up their spare moments in tending and training these ornaments of their homes. I have generally found the female taste more pure in this respect than that of the other sex. The gentleman amateur is more attracted by novelty, and is prone to be very expensive in his desire to secure the last new and fashionable Dahlia or Pelargonium; but the lady will find pleasure in attending to old favourites, and probably will like them better for being old. In the horticultural society to which I have already referred, the only exhibitors of wild

flowers were ladies, and it will generally be found that the gentler sex is more easily pleased, and less easily discouraged by the results of garden operations.

I think it a sign of a good state of things in the advancing population of our country, that these amateurs on a small scale are much more numerous than they ever were. Five-and-twenty years ago how few seed-shops were there in London, and what sombre, melancholy places they were! They displayed dried herbs and dormant roots and bulbs in abundance; but the passers-by were not attracted by blooming Hyacinths or rows of gorgeous Carnations and Dahlias. Now, every extensive street has the repository of a seedsman and florist, and the purchase of a few plants or bulbs is a common affair with a class which a few years back looked upon them as forbidden goods. I confess to a large share of good feeling for all these minor cultivators, and wish them all success in their operations. Twenty, or even five shillings spent in the purchase of Crocuses, Tulips, and Hyacinths for window culture, will bring an admirable return in the form of pleased faces and gladdened hearts when they are in bloom.

IV. IMPORTANCE OF FIRST PRINCIPLES.

Every reader of these pages must give us credit for an anxious desire to diffuse sound information on the subject of horticulture. We wish to make gardeners thoughtful as to the principles on which all

successful operations depend, and thus to take their pursuits as much as possible out of the domain of chance. Many first-rate minds are constantly occupied in investigating the modes in which vegetable growth proceeds, and the conditions on which its full development depend; but most gardeners neglect altogether this interesting study. As successful practice is all that is contemplated by the knowledge of the abstract principles of an art, we are not disposed to find fault with those useful men who are satisfied when they can produce fine flowers and fruits and vegetables by experience only. At the same time we can see no reason why every one who takes pleasure in horticulture should not, while working with his hands, exercise his mind at the same time on the phenomena presented to him.

In the province of gardening alone, much has yet to be discovered, to enable us to possess all that bountiful nature is willing to yield; and fruits and vegetables yet admit of indefinite improvement. With flowers, successful experiments are continually being tried, which add to the fame of such men as Beck, Lightbody, and Tyso. The most beautiful Pelargoniums and Ranunculuses are those which art has been exercised upon, and an extensive field is yet before the amateur in this department alone. Let every one enter on it although his exertions may be very limited, and the general stock of floral beauty must be increased. In reference also to every kind of gardening operations, experiments should be carefully conducted, and the results fairly shown. No day passes without presenting to the observer some new facts, or some fresh combinations of

facts already known; and if the eye and the mind are both on the alert, beneficial results must accrue from their being recorded. The present practice of gardening is, of course, the consequence of the united experiences of those who have gone before us; let us contribute all we can to hand it down in a more effective state to those who will come after us.

But the most acute observer of natural phenomena in horticulture will pursue his investigations under great disadvantage, unless he avails himself of that scientific knowledge which it is the honour of the present age to possess. Chemistry should be studied to some extent; structural and physiological botany of course cannot be neglected with impunity, if we are to observe in the most expeditious and profitable way. Perhaps we cannot do better than recommend the careful reading of Lindley's "Theory of Horticulture," as exhibiting the kind of knowledge we wish all gardeners to have. The reason why such and such modes of proceeding issue in certain results is there indicated, and the mode of studying these subjects is pointed out. What Bacon's "Novum Organon" is to general science, Dr. Lindley's "Theory" is to horticulture. While abounding in practical wisdom, its greatest value is its pointing out the method in which we should operate. Such a work cannot be read by amateurs generally without an immense progress being at once made in the practice of gardening.

While these remarks are intended to add to the pleasure of the amateur in attending to gardening duties, we confess we have a higher object in making them.

As has often been said, gardening is farming on a small scale, and the holder of a few poles of ground has the opportunity of making experiments which may tell on national industry and wealth. Let not supineness, or the "let-well-alone" system prevent that mental exertion, which so highly adorns corporeal labour, from achieving its triumphs. A sensible man should be inaccessible to ridicule; and if, by daily observation of the habits of his Pansies or his Turnips, he can elicit an unobserved fact bearing on our great crops, by which the nation is fed, he ought to consider himself an honour to his country, and the friend of man.

January.

"Where now the vital energy, that moved
While summer was, the pure and subtle lymph,
Through the imperceptible meandering veins
Of leaf and flower? It sleeps; and the icy touch
Of unprolific winter has impressed
A cold stagnation on the intestine tide.
But let the months go round, a few short months,
And all shall be restored. These naked shoots,
Barren as lances, among which the wind
Makes wintry music, sighing as it goes,
Shall put their graceful foliage on again."—*Cowper.*

The Calendar.

Flower Garden.—Great care must be taken of all plants in frames and windows, to protect them from frost; but air should be allowed freely when the thermometer is above the freezing point. Advancing Hyacinths in pots and glasses should have all the light possible, or they will grow sickly and be injured in their bloom. Whenever the weather permits, dig the borders so as to allow the soil to be mellowed by frosts, taking care not to injure underground plants. A few pots of Mignonette may be sown for early bloom.

Kitchen Garden.—All work neglected in the autumn must be got through in favourable weather. Digging,

pruning, transplanting, &c., should be finished if possible this month, for the next will demand its appropriate labour. Protect beds of Celery, so that it may be available when wanted; do the same also for young Lettuces. Towards the end of the month broad Beans and Peas may be sown for the first crops. Guard against the ravages of birds, and, in case of mild weather, search for slugs. Cover up Sea-kale beds with ashes or dry mould, to come in when the forced crops are over.

I.—ON LAYING OUT SMALL GARDENS.

It happens every year that an immense number of plots of ground are either laid out as gardens for the first time, or are re-modelled on coming into possession of more fanciful or more tasteful proprietors. Now this laying out is an important matter, on which a few remarks will not be thrown away. We are constantly hearing the observation made by the owners of gardens: "I regret that when I arranged this piece of ground I did not have turf here, or plant a hedge of Laurels there," or remarks of a similar character—all implying that sufficient forethought was not employed in the construction of the garden. If, therefore, you have just become a tenant of a new house, with a rood, or even a few poles of ground, or if you are so dissatisfied with your old garden that you have determined to remodel

it, allow me to suggest the following principles for your guidance.

First, decide to what extent you mean to patronize flowers or vegetables respectively, that you may appropriate your available space to these different purposes in the destined proportions. But unless you have ground enough to supply your family with culinary productions, give up the kitchen-garden entirely, except a corner for herbs and salads, and let an elegant taste prevail over a very questionable utility. To see a small piece of ground which might be made a gem of floricultural beauty, devoted to Cabbages, which during the whole season may be worth five shillings, is very lamentable; and I hope to dissuade some of my readers from this very common practice. If you have room for vegetables, so much the better; but if you are very limited in space, determine to patronize the green-grocer, and to adorn your dwelling with those beautiful productions which will delight and repay yourself for all your labour, and perform an important part in the education of your children. The natural tastes of the little ones will revel in the flower garden, and their budding minds will involuntarily acquire an expansion and a love of nature from the objects around them.

Having fixed on the spot for the flower garden, next decide on the plan; that is, where you will have your paths—which shall be turf, and which borders or beds. I confess I entertain a strong dislike for much gravel in a small garden, and especially for a multitude of little beds surrounded with Box, and intersected by narrow labyrinthine paths. Anything very peculiar is unsuit-

able for little plots of ground, and the aim should be to get as natural and verdant an appearance as possible all the year round. Have a good hard gravel path, wide enough for at least two persons to walk abreast, which shall enable you to get round your floral estate in wet or damp weather; but let all the other beds be surrounded with turf. The difference between a garden with much Grass, and one without any is wonderful. In the former case every flower is set off, like a precious stone in an appropriate setting, besides the immense advantage secured in winter, when few flowers can be expected. Of course you will take care that the parts intended for paths or Grass-plot shall not be dug into, except for the purpose of removing good mould from the former to be replaced by rubbish. It is a great point to let turf and gravel be laid on an undisturbed subsoil, for however you may tread and ram down that which has been dug into, the first heavy rains will alter the levels, and much labour will be the consequence.

Let some small beds cut out of the turf be devoted to florists' flowers, or to bulbs in spring and exotics in summer. The beds or borders nearest the walls should be planted permanently, taking care to secure the sunniest parts of the walls for appropriate climbers, and those more shaded may be hidden with Evergreens. Get the walls of the house covered with climbing Roses, and other adornments, too numerous to mention. If you have space enough, let a working compartment be shut out from the garden by Evergreens, for the operations of forcing, or other works which render a

dung-bed and frame necessary. If you are not limited as to expense, these counsels will not be necessary, as a greenhouse and heating apparatus will render any such unsightly things as hotbeds quite out of the question.

A good garden is often spoiled by the approaches to it, or by the vicinity of out-buildings. In many instances servants have no access to the back regions but by coming across the garden. All such anomalous and awkward arrangements should be avoided in building new dwellings, and remedied in the best possible way in the case of old ones. It is surprising what a general good effect may be produced in a confined space, by judicious planting, and by presenting what ground you have as "one harmonious whole." In proportion as gardens are small, the difficulties increase, but taste will overcome all obstacles. In the neighbourhood of London, at Brixton and Tulse-hill for instance, the little plots of ground in front of the houses, show what may be done by a judicious adaptation of vegetation to a confined space. Many of these front gardens are illustrations of the principles laid down in this paper.

II.—MISCELLANEOUS REMARKS ON LAYING OUT GARDENS.

If it is necessary to observe a proper distance in planting trees, and to make due allowance for future growth, it is equally important to consider their sizes

and positions in relation to the garden itself, and to each other. Large trees in small gardens are very incongruous, and should by no means be admitted. Fruit trees should all be of the dwarf kind, and ornamental trees and shrubs should be chosen in reference to their compactness when full grown. Taste demands attention to this rule, as it is utterly impossible to secure beauty in a garden overshadowed with heavy foliage. Utility puts in an equal claim, as no vegetable productions can be expected to come to perfection without abundance of light and air.

In small gardens, when it is requisite to partition off some compartment for kitchen vegetables, or for the necessary frames and manure heaps, it is better to have ornamental hedges than walls, as the former give an air of greater extent than the latter do. Whitethorn and Privet, mixed, make a substantial hedge, green all the year round; but this cannot be compared with Holly, which both for beauty and effectiveness is unequalled. The general objection to Holly is, that it grows so slowly; but if properly planted and afterwards attended too, it will rapidly attain sufficient height for the purpose of a screen.

In the kitchen garden, the herb bed should be put in a situation as near the house as possible, that unnecessary trampling on the paths may be avoided in bad weather. This reminds me of the importance of a proper arrangement of scrapers, which should be introduced frequently, that the feet may be freed from dirt before leaving the beds. Gardeners are sometimes provokingly careless in reference to these minor matters,

and in winter will come off a Cabbage compartment with their shoes as heavy with mould as a ploughman's. This mould is scattered on to the paths, spoiling the gravel and offending the eye. If there is a sufficiency of scrapers they have no excuse for this neglect, and you may reprove offenders without fear of the retort, "Sir, how are we to help it?" For the same reasons, see that you allow no clayey or chalky gravel to be introduced to your premises. It may be difficult to get the right kind, but you had better pay six times as much for it than put up with an inferior article. Common stuff, not half sifted, may look well in fine weather, but wait till winter and you will repent your bargain.

Box does as well as anything else for edgings in a kitchen garden. I have Box in some parts and large flint stones in others; but I prefer the Box. It is charged against it that it harbours snails and other vermin; but so will anything you use as a bordering. Under and round about my stones I find as many slugs as in the Box. In reference to the mode of planting Gooseberry and Currant trees, whether in clumps or singly round the borders, no rule can be laid down. Both plans have their conveniences and inconveniences. It must be observed, however, that, if planted together, a considerable space should be left between each bush. The clump system has this advantage, that birds can be more easily kept from the fruit in summer, and from the buds in winter. An idea is prevalent that Raspberries do best in damp, shady situations, but it is a false one. The plants like a deep rich soil, but they cannot have too much sun, if fruit of fine flavour is desired.

III. GENERAL DIRECTIONS FOR JANUARY.

There are many important operations demanded at this season, both in the flower garden and kitchen garden, which yet, from their simplicity and commonplace character, are likely to be overlooked. Some of these will be indicated in the present paper, both on account of their intrinsic importance and as furnishing a specimen of that general oversight which the gardener should exercise over his domain. Spring will soon return, and with it a host of labours which cannot be deferred. The comparative leisure of the present season should therefore be embraced as giving opportunities of a valuable kind for attending to matters apt to be forgotten.

A general inspection of all trees and shrubs should be made for the purpose of removing some of those which are too thickly planted, or correcting in other ways the errors originally perpetrated. When a garden is first laid out it has a very naked appearance, and too close planting is almost sure to be practised by all amateurs. The mere sticks which are destined to become Apple and Pear trees, and the little tufts of green to be expanded into Laurels and Yews, seem so few and far between, that the temptation to plant thickly is irresistible, and the fault is therefore more often committed than avoided. But the error must be corrected in a year or two, or the whole stock will be injured. Look carefully at every tree, and allow for its probable size when full grown; then remove carefully

any others in the way of it, regulating your decision respecting those to remain by the situation and character of the trees.

Young fruit trees will require looking over, that suckers and wild shoots may be removed. Where the growth is vigorous, the knife must be employed but sparingly, only indeed for the purpose of regulating and improving the arrangement of the branches forming the head. Those which cross each other, or fill up the centre too much, should be cut away, so that a good branching head, pervious to sun and air, may be the result. Trees against walls should not be nailed in until the advancing spring imperatively demands the operation. Let it be remembered, how contrary to nature is the position of such a tree. Instead of its branches being shaken, and stretched, and bent by blustering winds, they are confined, like an animal frame upon a rack, and denied, as it were, the free use of their limbs. There can be no doubt that disease is often the result of this artificial mode of growth, and therefore its evils should as much as possible be guarded against. Neatness indeed is promoted, by having the walls finished as early in the autumn as possible; but a healthy growth will rather demand an unloosening of the old fetters than the immediate imposition of new ones. The pruning may therefore be finished now, but the nailing will be better left for a time.

Old trees may be advantageously looked over, that rotten and superfluous wood may be removed, and moss taken off from the branches. The state of many established fruit trees is very deplorable. Some mild

dry day in winter may be profitably employed in furbishing up these useful old standards, which will increase in beauty and fruitfulness by a little care.

IV. PROSPECTS OF THE SPRING.

The season most trying to those who are interested in the operations of gardening is rapidly passing away, and the amateur may begin to take heart, and expect that his labours will soon be crowned with success. It is true, we are not yet in the middle of January, and that the proverb may prove correct, "As the day lengthens the cold strengthens;" still a large portion of the dullest and worst weather is gone, and the developments of early spring will soon be visible. Since the beginning of October, the gardener has stood on the defensive, awaiting and dreading the combined attacks of damp and frost, and comparative darkness; but now three months of this state of anxiety have passed away, and even if there were no other circumstances of a cheerful character than the departure of this long period of watching, this would be something.

The increase of solar light, and the clearness of the atmosphere, during the early weeks of the year, exert a very salutary influence over plants in pots, whether in houses or in frames. The most trying periods for the collections of the amateur are doubtless the months of November and December. How rapidly mildew then shows itself, and how long and sickly are the shoots of

plants of a quick growing character, which then are put forth! But the increased dryness and clearness of January, and especially the greater portion of light then enjoyed, soon alter this state of things, and induce a more healthy action. A long hard frost is in many respects more favourable to the preservation of plants than dull close weather at this season of the year. Keep your frames well wrapped up, and your greenhouse a few degrees above the freezing point, and let your indoor plants be watched, and moved from place to place, as there may be necessity, and you will find that a frosty January will befriend you more than a mild November.

The vital powers of vegetation begin to be active very early in the new year, and an increasing source of interest is opened to the diligent observer. In autumn all is decadence and decay, the advance being on the side of spoliation and destruction. But now that nature has calmly submitted to the seasonal death which destroyed her beauties, she concentrates all her powers for a speedy resurrection. After the hardest and longest frost, how quickly do hardy bulbs begin to appear above the ground. We may now observe the white corolla of the Snowdrop ready to throw off the calyx which yet binds it in its folds. Crocuses only require a few warm days to bring out their gorgeous colours; and the flower-stems of Hyacinths begin to elongate, and cause the flowers to protrude. Herbaceous plants embrace every fine day to give less equivocal indications of their locality, and all the vast varieties of leaf-buds become more sensitive to the

influences of bright days and warm showers. If a frost visits us in November, we look in vain for these indications of life when a thaw arrives; but in January the icy bands are no sooner dissolved, than we may find in every flower-bed these welcome pioneers of spring.

Happy is that amateur who has now a stock of bulbs in pots and glasses in different stages of progress! As your Hyacinths push forth roots and expand their deep green leaves, let them have more heat, and you will soon be delighted with the results of your labours. The elegant proportions, rich colours, and powerful fragrance of these favourites of the drawing-room, would make them valuable at any time; but to get all these excellencies in winter is a great treat indeed. Roses in pots will also now make rapid progress, and, if properly attended to, you may insure a profuse and early bloom. Even if there were no other plants in a window than half a dozen varieties of Roses, the attention given to these would give the winter a charm. The foliage is so varied in colour, and the flower-stalks are so graceful, that all the care necessary to preserve them in health is well repaid. From quarters, too numerous to mention, the amateur will be pleased every day as the spring hastens on, until April and May introduce him to all the glories of vegetable life.

It is probably this hastening future, this daily drawing on of the warm and sunny days of spring, which gives the chief charm to the new year, and infuses into the spirit of the amateur gardener that determination to persevere which he now so strongly feels. I have

every year been conscious of a weariness of this, my most favourite pursuit, which exerts its influence at the close of the summer, when there is much more labour to perform, and the results of that labour are so far off, as to furnish but little stimulus. I have heard others say that they have experienced the same desponding feeling. But how it vanishes when life begins to bud and flower in our collections of plants! Nature, awakening from a long slumber, imparts to us a portion of her own genial influence. Difficulties now present no hinderance to the cultivation of those tastes which have been suspended but not weakened, much less destroyed, and we determine afresh to become devotees to Flora. To my readers, who, like myself, still intend to weave garlands to place upon the altar of that goddess, I present a wish that their labours may be productive of much external beauty and inward satisfaction.

V. BULBS IN WINDOWS.

The secret of success in cultivating plants, either indoors or in the garden, is found in a genuine attachment to them; it is this alone which will make the labour pleasant, and secure a watchfulness necessary to success. People seem to think that flowers should bloom of themselves, and that when they have purchased them they have done all that is requisite. In the spring of the year there are found in most parts of the country, travelling florists, or rather itinerant vendors of flower-

ing plants. Really valuable and beautiful greenhouse plants are thus exposed for sale, and are soon bought up. Placed in the windows of the purchasers, they look gay for a time, but a change soon comes over them; they become sickly, wither, and die, and the purchasers either charge the seller with imposition, or more wisely conclude they have not understood the treatment of flowers. In either case, the temporary *penchant* is relinquished, and the travelling greenhouses tempt in vain another year.

Now, a little consideration would have prevented this disappointment, saved the character of the seller from suspicion, and defended flowers from the prejudice thus excited against them. It should be remembered by every one who puts his hand to a trowel or a spade, that a plant is a highly organised structure, and requires for its health the most skilful treatment. A lapdog cannot be made tolerable without careful washing and combing; an infant demands daily attention to its numerous wants; and, *mutatis mutandis*, a plant requires equally sedulous care, for precisely the same reason; they are all highly organised, and have delicately constructed machinery, which neglect will soon throw out of order. Now, the raisers of plants in pots just spoken of knew all this, and by acting on their knowledge, had succeeded in preserving in a state of health those productions which attracted the eye of purchasers. They had guarded them from frost in winter, had potted them in soil adapted to their habits, and had placed them in an atmosphere favourable to their development; and, when in the beauty of their bloom, had sent them, care-

fully shaded from the cold and wind, in covered carts through the country. When placed in the hands of their new masters, if all these circumstances had been considered, an attempt would have been made to adapt their new residence to these habits. Persons exercising this consideration preserved their plants, others, forgetting their organisation and natural wants, allowed them to perish.

I will not guarantee the life, much less the efficient blooming of bulbs, if these observations are not carefully attended to. The amateur will always think of his pots in the evening, and provide for them a proper *habitat* for the night. As most houses have window shutters inside, the plants will of necessity be moved; but if this should not be the case, the weather must be watched. If the night is rainy or cloudy, there need be no apprehension of frost, for even if it should freeze before morning, there will not be time enough for an injurious radiation of heat from the room where the pots are placed. But if it has been frosty in the day, never allow the advancing bulbs to remain close to the window, but put them on a table in the middle of the room before you retire to rest. I have found Hyacinths much advanced by always placing them at night on the mantel-piece of a room which has had a fire during the day. Their growth has thus been carried on without intermission, which is worthy of consideration where an early bloom is desired. During severe frosts, the whole collection may be shut up in a dark room for a few days, without injury. I lay much stress on attention to temperature,

because I have lost many bulbs altogether from their freezing in the pots, and have had the bloom injured from the same cause, even when the roots have escaped.

As the leaves of plants are the laboratories where the processes of assimilation and respiration are carried on, attention is demanded to their healthfulness. They should be kept free from dust. Careful amateurs will, therefore, remove their pots from the sitting-room in the evening, to save them from an infliction of fine powder raised by the broom of the housemaid in the morning, which dust will fill up the pores and injure the plant. Unavoidable dust may be removed by a syringe, or the fine rose of a watering-pot, but a shower of rain is a refreshing season indeed for these winter ornaments, and ought never to be neglected. Put the whole collection out of doors, and let them remain there all day, if the rain is not too heavy. You will be well repaid for your labour, for the plants will be completely renovated. The leaves will acquire a deeper green, and become more firm and erect than before, and you will feel, in looking upon them, emotions like those of a mother, when her tribe of little ones present themselves to be kissed, with faces shining from the ablutions of the nursery. I think I have now established my point, and proved that no success can be expected in gardening, unless the gardener has a genuine attachment to his flowers; for, unless compelled by duty, no one will take the requisite trouble in cultivating them, if the powerful influence of affection is wanting.

VI.—WORK TO BE DONE AFTER A THAW.

All frames must be uncovered as soon as it is thought the thaw has done its work within, but not before, and as early as possible every pot should be looked over. The first sunny morning should be chosen for this work. Remove all dead leaves and branches with scrupulous care, as it is from mildew the greatest danger is to be apprehended. Let the soil be stirred a little where required, and a search be made for slugs and snails, which may otherwise destroy what the frost has spared. Arrange the pots so that plants with bushy heads may not come together, but let as much space as possible be allotted to all such. When this is done have all your mats dried, and keep them in readiness for the next campaign, for this is only the beginning of January, and some hard-fought battles may yet be anticipated.

Bulbs in pots should be attended to in the following way:—If the pots are in a frame buried in leaf-mould, on removing the covering, the Crocuses, Tulips, and Hyacinths will be found to have made strong shoots, and be evidently in a proper state for removal to the greenhouse or sitting-room. Select those which have made the greatest progress, and take them away; the others must have the leaf-mould returned to them. The pots intended for blooming should then be washed, and have the surface-mould stirred and neatly arranged. Place the pots in the greenhouse, or near the

glass in the sitting-room, and the bulbs will rapidly exhibit their blossoms. Water must be liberally supplied, increasing the quantity as vegetation advances, for it is astonishing how much a Hyacinth in bloom will swallow up. Those returned to the frames may be examined from time to time, and they will form a succession to take the place of those now more advanced.

If the work has not been done before, it will be well to take advantage of a thaw, to spread a layer of leaf-mould, or other good compost, over beds of Tulips and other bulbs. After a frost, bulbs rapidly push their leaves to the surface, and as frosts are still to be expected, this top-dressing will protect them. Rotten manure may also be put on the flower-beds, to be dug in a month or two hence. Look also to the budded Roses, and if in any case the matting is too tight about the bud let it be loosened, or water may lodge, and rottenness ensue. Carnations must be pressed into the soil when the frost has loosened the roots, and those in pots have all dead leaves cleared away.

VII.—MANURES.

As this is a month when little can be done in actual cultivation, the amateur will do well to study the humble but important topic now suggested to him. Although it is as vain to attempt to keep a garden in good heart without manure as it is to try to preserve a

good state of bodily health without a sufficiency of food, there are parties to be found every day who think the experiment worth trying. Because they keep neither horses nor pigs, they will not go to the expense of buying those substances by which the exhausted energies of the earth are restored. The starved ground, through this ungenerous treatment, is unable to repay the toil expended on it, and dwarfish and unhealthy productions are the result. Although the subject is one not very proper to be presented to ears polite, it is nevertheless of the utmost importance, and a few lines devoted to it will not be very badly spent. The question of manures may be called a national one, intimately connected with our wealth and happiness, and any one who points out the most economical modes of fertilising the land confers a benefit on his fellow-creatures. Our observations now refer to small gardens, but a principle will pervade them applicable in some degree to the largest farms. In the spirit of our remark in a former paper, we believe that what is calculated to benefit the amateur gardener may have important bearings on the pursuits of the farmer.

The resources of an ordinary house and garden, if properly husbanded, will go far towards manuring a good-sized piece of ground. All vegetable refuse, leaves, stalks, &c., should be collected into a heap, and when thoroughly rotted, will make the very best manure for flower-beds or for plants in pots. The flower-garden will never require a dressing more powerful than good leaf-mould, some special things, Roses for instance, excepted. If the sweepings of

paths and of sitting-rooms, or of the house generally, which contain a good deal of sand, are mixed with this vegetable refuse, in a year a good compost will be ready for use. Wood ashes are highly beneficial for any purposes, but cinders are not desirable things except in heavy clayey soils. The fine soft ashes arising from coal, thoroughly burnt, may be always used with advantage. Bones, old rags, cuttings of hair, &c., are all useful; and the amount of these things in a year from a small family is very great. Those who live in country places may often have road scrapings for the trouble of fetching, and these are great improvers of a manure heap. All these matters should be turned occasionally, and used when thoroughly rotten and incorporated.

But the *cloaca* is the grand source of manure when properly managed, which is not the case in one instance in ten. In most houses there is a common receptacle, into which all substances, liquid and solid, are thrown, becoming in the process of accumulation a great nuisance, and a still more formidable one when removal becomes necessary. Now a little management will prevent the nuisance, and turn the affair to the best account. The *cloaca* and the dust-hole should always be adjoining, that the dust and ashes from the house may be spread over the surface of the former *every day*. Bad odours are thus neutralised, and the whole contents are removed without any unpleasantness. One thing, however, must be sedulously attended to in connection with this arrangement: no slops must be allowed to find their way into this receptacle, or the object will be defeated. All

liquids brought out of the house in the morning must be disposed of in another way. If you have no kitchen garden, or no meadow land, get rid of these slops by the common sewer. If you have a larger garden, or land, have some heaps of hungry soil always ready, and saturate them with the contents of the slop-pail. By removing these heaps and placing others, everything will be saved, and a most efficient manure provided at small expense. When the *cloaca* is emptied, the mixture must stand for a year, and be turned over two or three times before it is used. If these regulations are observed, more comfort will be secured in domestic arrangements, and everything will be available for the land.

VIII.—GOOSEBERRIES AND CURRANTS.

If not done in the autumn, it will soon be time to prune Gooseberry and Currant trees. Vegetable life is in activity much earlier in their case than with other fruit trees; and it is always desirable that pruning should be finished while the tree is in a state of rest. Every advancing bud which is cut off is so much abstracted from those which remain, and the life thus wasted ought to have been concentrated in the tree. From the shoots thus cut off, select some of the best as cuttings, which will root immediately if put in now. On the right management of these cuttings the well-being of the future tree and the comfort of the cultiva-

tor will depend, and therefore a little trouble should be willingly incurred. Select strong shoots, and let the end to be inserted in the earth be cut sharp and clean to a bud. Allow three or four inches to be buried in the soil, and eight for the stem above ground; eight inches I mean exclusive of the part which is to form the head of the tree, which must consist of three or four buds, so arranged round the axis that the future branches shall be at equal distances from each other, so as to secure a cup-like form when the head advances. Having determined on the buds to be preserved, carefully exterminate all the rest, especially those on the part to be inserted for the roots. If this is not done, you will be troubled with suckers every year—a pest you will be free from to a great extent if this rule is attended to. I was about to make a more positive statement; but I remember finding suckers proceeding from the larger roots, and even from parts of the stem where there was previously no bud. Do all you can to prevent the evil; and its existence must then be provided against in the best manner afterwards, should it occur.

In two or three years the cuttings will have good heads, and they may then be placed in the situations they are finally to occupy. At that time it will be proper to determine whether you will grow them as standards or espaliers, the latter mode being adopted with success, especially in the case of those Gooseberries of a trailing habit of growth, peculiar to some of the best varieties, which makes it very difficult to form a good head. This determination refers more to the

position in which the trees are to be planted, as it is manifest that the training of the bush must be regulated from the first, so as to make it an espalier or standard. In both cases avoid close planting, by which nothing can be gained, but most probably much will be lost. Keep the soil around them free from weeds, and dig in every year a little well rotted dung. To prevent the ravages of the caterpillar, it has been recommended to remove the surface soil every autumn, and replace it with fresh brought from a little distance. It is said that the eggs are deposited near the trees, and are thus removed. A little quick-lime spread over might be equally effectual. I must confess I feel a little ashamed of being obliged to speak doubtfully on this important subject; but I am not acquainted sufficiently with the habits of this insect to speak positively, yet few persons have suffered more severely from its ravages than I have.

We now return to the point whence we set out, the annual pruning of the trees. First cut away as much of the bush as will leave it accessible to sun and air, and preserve a compact and open arrangement of the branches. If the tree is old, remove as much as you can of the older wood, and introduce young shoots in its place. Gooseberries and Currants bear on last year's wood, not exclusively, but principally, and yet a very different mode is adopted for each. The former are trained so that last year's growth shall remain as long as possible, one or two buds only at the extremities being cut off. Currants, on the contrary, are spurred, each new shoot being cut down to within two buds, a

few leaders excepted, for the future enlargement of the tree. The same plan may be adopted with the Gooseberry, but it will have this disadvantage; the fruit will be too crowded to allow of proper expansion, whereas the pendent form of a bunch of Currants allows of closer quarters. Summer pruning should not be neglected, as there can be no doubt that the removal of the profuse growth of that season judiciously will throw greater strength and maturity into that which is permitted to remain.

If very large fruit is wanted, the berries must be thinned out, and liquid manure applied; but a separate paper would be necessary to detail all the arts and crafty ways of Gooseberry fanciers. In picking fruit for use, let discretion guide your hand, as a thinning equally all over will do more good to the remaining berries than the common practice of stripping whole branches at once.

February.

"The cloudy brow
Of winter smoothed, up from her orient couch
She springs, and, like a maid betrothed,
Puts on her bridal suit, and with an ardent smile,
Comes forth to greet her lover. Graceful 'tis,
Ay, passing sweet, to mark the cautious pace
Of slow returning spring, e'en from the time
When first the matted apricot unfolds
Its tender bloom, till the full orchard glows."—*Hurdis.*

The Calendar.

Flower Garden.—Sow annuals in a frame at the end of the month. See that plants in the greenhouse or window have a little more water as the solar light and heat increase. Look over the frames and pits, and clear away dead leaves, and stir the soil of the pots. Change the water of Hyacinths in glasses every week at least, taking care that the same temperature is maintained, that the plants may receive no check. In fine warm rains all the window plants may be put out of doors. They will thus be cleansed from dust, and get a start in their growth. Plant Ranunculuses towards the end of the month. Auriculas and Carnations in pots must now be well attended to, as their growth advances. Flower beds may now be smoothed down, a little leaf mould or well rotted frame manure being added.

Kitchen Garden.—Sow small crops of Peas and Beans, early horn Carrot, Dutch Turnip, Onions, &c. &c. Get the Cabbage plants in for summer use. In small gardens they may be planted as thick again as they should be left finally, and every other one may then be pulled up for early use. Tie up Raspberries, finish the training and nailing of wall fruit trees, and prepare protection for Nectarines, Peaches, &c.

I.—TREATMENT OF PLANTS IN POTS—PRINCIPLES OF REPOTTING.

Most persons who patronise horticulture have plants in pots, which, having escaped all the mischances of winter, are now beginning to put on their new foliage, and to prepare for the development of bloom. Even the meanest cottages have often flower-pots, which, after being covered with dust in the dreary season, are now exposed on rainy days as the spring advances. The experienced amateur has been training his exotics for months past, whether he has a greenhouse or is contented with a frame and a parlour window, and they are now in good order, and making rapidly their new growth. But there are many devoted lovers of flowers who are not experienced amateurs, and their little stock of plants in pots now engages their attention for the first time. What had we better do with them? is now asked, as Pelargoniums, Fuchsias, &c., are brought out on a sunny

day. This question we shall endeavour to answer, so that the least practical hand may not be misled.

Repotting is demanded by at least two important principles in the economy of vegetation—the dependance of the plant on the state of the root, and the quality of the soil. Turn out one of your last year's Pelargoniums, and you will find the pots so full of roots, that you will wonder what has become of the bulk of mould they have displaced. These roots have evidently been seeking after more house-room, for they have wandered round and round the pot in curious spiral forms, until at last no place remains for their lively wanderings, and they grow wearied with the search, remain motionless, and become stiff in their texture. In this state, no healthy growth of the plant can take place, and the first thing to be done is to cut away large portions of the old roots, leaving only those which are youngest, in greater or less quantities according to the size of the head they are to sustain. When this is carefully done, and the plant has been in its new circumstances for a few days, fresh spongioles or little roots will push forth, and a corresponding healthy growth of the foliage be developed. It must be observed that this treatment will not answer if the plants have made much progress. The autumn is the proper time for root-pruning, and the plants should be cut down in proportion as the roots are cut away. But all deciduous plants, such as Fuchsias, which are just now pushing forth leaves, may be treated thus with advantage.

Repotting is demanded further by the deterioration

of the soil. In the open ground plants are supplied with proper nutriment by the application of manure, and their roots being unconfined they can stray where they please in search of food; but in a pot these conditions are not fulfilled. A little soil only can be given, and however rich it may be in fertilising qualities, they are soon filtered away by artificial watering. Then again, soil should be porous and open for a healthy vegetation to be secured; and therefore, although liquid manure might supply the losses of the soil, it would not serve to keep it light and open. The next thing therefore to be done, after the roots are reduced in size, is to repot them into an appropriate soil. What that is depends of course upon the nature and natural circumstances of the plant; but, for general use, any rich mould which allows water to permeate freely will answer the purpose. If, when you have repotted your plant, you find the pot feels as heavy as lead—that water applied to the surface stops there, and only gradually disappears—you may be sure your labour has been thrown away; for no plant will remain healthy in such a mass of clay. On the other hand, if the mould feels elastic when pressed down, and water applied runs rapidly through it, your work may be considered properly done. What is called good garden mould, with about one-third its bulk in rotten leaves, and one-third of coarse sand, will make a compost adapted to general purposes.

Many gardeners mistake the requirements of plants by seeking for what they call fine mould; and some sift it to secure this fancied advantage. Coarse lumps,

and even stones, will be of use rather than otherwise in keeping the drainage clear. For the same reason, water should always be supplied in very small quantities. As much as will moisten without running through should, if possible, be given, since every portion beyond that washes the soil of its best properties.

II.—SOIL FOR POTTING PLANTS.

As this is the season when the plants in pits and frames, which have survived the winter, require repotting, the amateur should make himself acquainted with the best method of performing the operation, that his collection may have the best chance for future development. My observations on this subject will principally regard those who have not a greenhouse, and will refer to those classes of plants which may be kept with care during our winters in frames, such as Pelargoniums, Fuchsias, Calceolarias, Verbenas, Petunias, &c. These having been stored away in very small pots, must now be transferred to more roomy quarters, and finally potted previous to blooming.

The possession of soil of the right character is indispensably requisite to the successful potting of plants, and the gardener must attend to this before he commences his labours in this department of his art. The theory is, that the compost should be of such a character as to continue porous as long as possible, and be

capable of yielding suitable nutriment to the productions committed to it. Those who have had experience in such matters will remember the different results manifested in watering plants in pots. In some cases the water passes rapidly through the mould, in others it pursues a wavy, sluggish, and lethean course to the bottom of the pot, and, in a few instances, it stands on the surface a long time after it is applied. Now, it will almost universally hold good that, in the first instance, the plant is in good health; in the second, it is slow in its growth; in the third, it is dwarfish and sickly. A compost must therefore be chosen which has porosity sufficient to allow water to move quickly off; for, if a redundancy of water is fatal in field culture, it must be even more injurious in the contracted limits of a flower-pot.

I know that ladies who love gardening, and have a limited number of favourites which they tend with their own fair hands, are often at fault in reference to the soil which they should employ for potting. I will endeavour to make the subject as clear as possible, and also as easy; for it is possible to deter from floricultural pursuits by a cumbrous parade of science, or an unscientific minuteness as to the composition of soils. I remember when I became devoted to gardening some years back, and tried my skill on Auriculas and Carnations, I was discouraged and disgusted with the long catalogue of nostrums said to be beneficial to their growth. Night-soil and pigeon's-dung and sugar-boiler's scum are rather ill-favoured materials to have to manipulate; and although it is true such things are

highly valuable in some circumstances, I can from considerable experience aver that horticulture can be successfully pursued without them.

I shall presently point out a mode of securing a proper compost at a day's warning, in cases in which an amateur has neglected to lay up a store of materials; but it is necessary to insist in the first place on the importance of having a well-prepared heap, which will furnish a supply whenever it is wanted. For this, two materials will be sufficient. Good turfy loam from an old meadow is the *ne plus ultra* in the estimation of all expert gardeners, and its value cannot be too highly estimated. Get as much of the turf with it as you can, and put it into a heap for twelve months, when it will be fit for use. The other material is thoroughly-rotted stable dung, taken from an old Cucumber frame, or by any other means brought to the state of dark friable mould. Two years are requisite to produce this complete rottenness. In the autumn these materials should be well mixed in equal quantities, and turned over two or three times in the winter. For most plants this compost will be found admirably suited, and there are few things which will not flourish in it. The turfy fibrous character of the loam secures a good drainage, and the rotten dung is *pabulum* adapted to the production of a vigorous growth and fine flowers.

But if you have not this goodly admixture, the result of two years' forethought, what is to be done then? As a substitute, take some of the best soil of your kitchen garden, part of an old Celery-trench, for example, and give it the requisite porousness by the addition of

road-grit or silver sand. If you can collect some rotten leaves and mix with this substitute, it will make it more effective. Experience will soon show you whether you have a compost of the kind you want, and after a little practice all will be easy. But if the past cannot be altered, its omissions may have a profitable bearing on the future, and the preparation of a proper compost should be as sedulously thought of as the winter care of the plants themselves.

III. THE OPERATION OF POTTING.

In addition to what has already been said respecting the kind of soil necessary for this department of horticultural art, I think it desirable to remind the amateur that each kind of plant should receive a little consideration before the operation of potting is performed, as a deviation from the general routine may be sometimes demanded by the habits of the plant. A vigorous growth will require large dimensions; the natives of arid regions will be improved by a larger proportion of sand in the compost; and plants impatient of moisture must have a more carefully constructed drainage. As it would be an endless task to point out all these variations, the gardener should rather be directed to the great principle, that in planting and potting he should accommodate his practice, as far as possible, to the nature and habits of the productions submitted to his art.

Get your pots from the makers; they then cost but a trifle; whereas, if purchased a few at a time, they become expensive. Those of a thin structure should be preferred, as a clumsy pot is not only ugly, but it takes up so much more room. For drainage, broken crockery and oyster shells do admirably well. Place a concave shell over the hole, and fill up to the depth of about an inch and a half or two inches with pieces of broken crockery, varying the quantity according to the size of the pot. Having the soil moderately damp, but by no means wet enough to prevent its crumbling in the hands, all is ready for the transfer of the plants to their destination. If young plants from a seed-bed, or rooted cuttings, have to be potted, the process will be the same, on a small scale, as that described in a former paper for shrubs and trees. Plant high in the pot, let the roots ramify equally on all sides, and settle the whole by gentle pressure. But repotting is an operation of greater nicety, and must be more fully explained. As the soil in pots is necessarily very limited, it requires changing, and at this season all the plants in your collection which have been kept in pits and frames must be so treated. Suppose you have a quantity of Pelargoniums which were struck last season, and stored away in small pots during the winter, the pots will now be full of roots, and the plants must be shifted. The size called 48's will be best for Pelargoniums and most window-plants, although reference must be had to age and robust growth in this particular.

Before turning out the plant from the small pot, let the larger one to which it is to be transferred be so far

filled with mould that the roots will be buried no deeper than they were before. Turn the plant and pot bottom upwards on to the palm and fingers of the left hand, which must at one and the same time keep the old soil from falling out, and allow the plant to remain uninjured in its topsy-turvy position. A slight tap of the edge of the pot on the barrow or stand where you are working will generally disengage the mass of root from its sides, and you may remove it with ease. An examination must now take place, the plant being still held in the open hand root upwards. Remove the old drainage, taking care not to rend away the young fibres which may have penetrated into it. If only a few roots are visible they need not be disturbed, but the mass can be turned as it is into the new pot, and the interstices round it filled up with the compost. The whole should then be pressed down so that the cone of mould and roots may no longer retain its shape, but may amalgamate with the new soil which has been introduced. But sometimes it will be found that the mass turned out is so entangled with roots, that repotting has no chance of success unless they are disturbed and partly removed. The thicker and older portions must therefore be pruned away, and what remains disposed in a form favourable for future growth. To turn out plants from one pot to another without any reference to the state of the roots, is indeed repotting, etymologically considered; but philosophy must have to do with the matter, if the practice is to be more than a name.

When the work is finished, the plants should be

shaded for a time, till they recover themselves; the young shoots should be arranged, and their growth stopped if necessary, by pinching off their points. The value of the process of repotting will be speedily visible, if it is properly done, in the rapid growth and healthy appearance of the plants. Besides this spring potting, in some cases the operation will have to be renewed. Fuchsias will often make so much new wood, and protrude roots so rapidly, that a transfer to a larger pot will be necessary. The judgment of the amateur must decide when this is desirable.

IV. ON THE RANUNCULUS.

As the season has arrived for planting this lovely production of Nature, I cannot refrain from calling the attention of amateurs to the subject, and urging them to make a trial of their skill in its cultivation. My remarks now will be general, as details will be given at length hereafter.

Messrs. Tyso and Son, Florists, of Wallingford, have lately published a little book entitled "The Ranunculus: how to grow it." The rules laid down by such successful cultivators must be worthy attention, and I can bear my testimony to their simplicity and practicableness. It may be interesting to some to be informed that Mr. Tyso, the elder,* commenced grow-

* Deceased since this was written.

ing the Ranunculus as an amateur, and *con amore.* Being successful, his stock gradually increased, and the mere love of flowers of early days resulted in Mr. Tyso, jun., becoming, under the guidance of his father, a florist by profession. To be a practised grower is something, but Messrs. Tyso are more than this; they are originators of most splendid varieties. Their system of hybridising has been eminently rewarded by the production of new flowers of vigorous growth and surpassing beauty, and they may claim in the south, the honour achieved by Lightbody in Scotland, of being the most successful propagators of the Ranunculus.

The season of the year at which the Ranunculus is grown makes the culture of it more interesting, since, with the exception of bulbs, few of our garden favourites will stand the cold nights and windy days of our springs. If we put the roots into the ground in February, by the middle of July they may be taken up again, in time for putting annuals and greenhouse plants in their place. As the foliage soon appears above the ground, the attention of the amateur is kept up, and in guarding against hard frosts, and the ravages of insects, an almost affectionate interest is secured. As the buds are developed, that interest is increased, and several times a day the possessor of a bed will visit it, to mark the almost imperceptible progress of his expected beauties. At length those beauties appear. The symmetrical petals show at their advancing edges the colours, and stripes, and spots, until, like the sun

emerging from the east in a spring morning, the full-orbed Ranunculus bursts upon the view. Then comes the petting, and shading, and the pride of exhibiting it to visitors, until its more feeble posture, and decaying colours remind one that "all that's bright must fade."

Although it is alleged that the Ranunculus can only be grown in certain localities, the position will not be credited by those who know the wonderful pliancy of Nature, by which her productions allow the greatest variations of soil, climate, and situation. All that is required is, to bring more art to bear on the subject, in proportion as the requisitions of Nature are less practicable. Soil of the right kind may be procured; a dry situation may be remedied by courting more shade; so that, if you wish to grow the Ranunculus anywhere, you may do so. Begin at once; for, although flowers may be obtained at any time in the summer or autumn, by later planting, this is the best time. If you secure only a part of the pleasure this pursuit has given to the writer, you will be sufficiently rewarded for all your expense and trouble.

While the old varieties are not to be thrown aside, I would particularly recommend the seedlings which have been lately raised, as having a constitutional vigour which the former appear to have lost. Messrs. Tyso have raised as many as 205 fine seedlings in one year, and a bed of any extent may be formed from the new sorts alone. I will subjoin a list of a few varieties, both old and new, with their descriptions:—

Alexis, yellow, spotted.
Attractor, white, purple-edged.
Cathcart, white, crimson-mottled.
Comptroller, yellow, spotted.
Creon, buff, coffee-edged.
Delectus, yellow, edged.
Dr. Horner, yellow, dark-edged.
Edgar, yellow, coffee-edged.
Flaminius, yellow, spotted.
Innocent, cream, purple-spotted.
Orsippus, white, pink-mottled.
Procles, yellow, spotted.
Surpriser, white, mottled.
Victor, dark plum.
Marquis of Hereford, crimson.
Sabina, yellow.
Harold, white, crimson-edged.
Rosa Maritana, crimson.
Coronation, buff, pink-mottled.
Queen Victoria, white, purple-edged.

The above are raised by various growers, as may be seen by their catalogues.

V. PLANTING THE RANUNCULUS.

The Ranunculus bed will demand that fine pulverised character which is so favourable to the operations of the gardener, and a few days of dry weather will be indispensably necessary before this root can safely be committed to the ground. As it is desirable that the collection should be planted by the middle of the month, a right state of the earth should be diligently watched for, and embraced as soon as secured. A few days earlier or later will not be of much importance, provided the soil is sufficiently dry to allow of its filling up the interstices of the tubers, and securing that firm yet porous state so necessary for a healthy vegetation.

The day being dry and fine, you may at once com-

mence your operations by nicely levelling the bed, which should be perfectly flat and not raised in the centre, a practice of which inexperienced gardeners are so fond, and which is so often injurious. As the Ranunculus naturally requires a low marshy soil, it will demand, in its cultivated state, a great deal of moisture, and therefore the bed should be below the level of the garden rather than above it, that drought may be repelled as long as possible, and that artificial watering, when necessary, may be most effective. In levelling let the surface only be stirred, as some degree of firmness in the subsoil is advantageous to the plant. Have ready the roots in the papers with the names, some neat wooden labels, and a quantity of clean white sand; then, determining to brave the cold wind which may be blowing, and not to be discouraged by the backache, proceed to commit to the earth the humble-looking tubers, which in four months are to develop so many beauties.

About four inches apart every way is probably the best distance at which the Ranunculus should be planted, and the amateur should therefore regulate the size of his bed by the number of roots in his collection, and dispose them equally all over it. With a cord and a small trowel draw a straight furrow across the bed, beginning in the centre and advancing to the edge with successive furrows, that the planted roots may not be interfered with. Place the roots so that the crowns shall be one inch and a half beneath the surface when the bed is completed, and having thus filled the furrow with tubers four inches apart, drop a little sand on each,

sufficient to cover it, and draw the excavated soil over the whole. Make another furrow four inches distant from the first, and proceed as before until that side of the bed is finished. Then operate in the same way with the other side, and the work is done. A slight pressure with the hand should be given to every row as the work proceeds. With regard to the labelling, I have found the following plan the best:—As each root is taken out of the paper, write its name on the painted stick with a strong lead pencil, and place root and label in the furrow together. The stick should be about one inch distant from the root and must be fixed in rather firmly, as I have found the sinister perambulations or gambols of a cat (oh! name abhorred by the votaries of Flora) sufficient to throw them into confusion. If the writing is always turned the same way, either towards or from the root, all ambiguity or mistake will be avoided.

Although the genial days we sometimes have in February allow the operations of sowing and planting to be carried on with advantage, it often happens that severe and continued frosts set in after the Ranunculus bed is completed, and the hopes of the florist are committed to it. This probable evil must be guarded against; for although the tuber will sustain a hard frost when it is really rooted, it is very sensitive when that is not the case. If a frost should come, a mat laid upon the bed will avert injurious consequences, or two may be used if the weather is severe. If, in the day time, the sun has power to unbind the soil, the mats

may be taken off, and the warm rays admitted; but be sure the mats are replaced at night. If the weather is auspicious, about three weeks will be sufficient for bringing the young shoots to the surface, when further care as to cold will be unnecessary. An operation must then be attended to of the utmost importance both to the future bloom and the increase of the tuber. When the leaves are about half an inch above the ground, the soil must be firmly pressed round them, so as to fix the tuber firm in the ground. This may be done twice with advantage as the growth proceeds. Lightness of the soil has been very often fatal to the Ranunculus, and must therefore be guarded against in the manner just described.

The manipulations which have been mentioned in this paper are rather laborious, from the long continuance of the stooping posture, and they will probably discourage those who are not thoroughly imbued with a love of flowers. But the resolute amateur will remember that no good results are ever secured without toil, and he will be cheered in his labours by the brilliant prospect before him. Although it is only a luxury, the production of which he contemplates, he may without presumption exclaim—

> "Be gracious Heaven! for now laborious man
> Has done his part. Ye fostering breezes blow!
> Ye softening dews, ye tender showers descend!
> And temper all, thou world-reviving sun!"

VI. RANUNCULUSES—CHOICE OF SORTS.

There is a marked difference between the old varieties of this flower and the seedlings which have been raised during the last few years. The tubers of the former are generally less robust and plump; the foliage is often weaker, and the flowers are almost always inferior in size and substance of petal to those of newly-raised seedlings. The art of hybridising has been wonderfully successful with the Ranunculus, and some new beauties are annually produced. Unless the old kinds are very striking and unlike the modern varieties, the amateur is recommended to make his bed of new sorts. His success will be more certain, and the healthy and vigorous growth of the roots more satisfactory.

A packet of carefully selected seed, purchased of a well-known cultivator, will repay all the attention bestowed in raising it; but this task should be undertaken by one who has had some general experience in the growth of the flower. Three seasons must pass before all the seedlings can be expected to exhibit their character, and even then the quality they will finally assume cannot always be ascertained. Some of the finest sorts will at first be semi-double, and time is consequently required to test their real excellence. Raising from seed, therefore, is not the course to be pursued by those who are growing Ranunculuses for the first time; and although I hope my readers will engage in this interesting pursuit, it will be more requisite now to point out the best mode of getting a collection of well-known and established flowers.

Without wishing, in the slightest degree, to question the integrity of seedsmen and florists, I feel it necessary to caution amateurs on the subject of purchasing Ranunculuses, as good kinds are expensive, and a failure is therefore very provoking. A very fine show may, indeed, be secured by one or two hundred mixed roots, which may be purchased at very small cost; and where a cheap bed is an object, or where the amateur fears to run a greater risk until he has acquired experience, mixtures may be recommended. But if you intend to raise a bed which shall excite the rivalry of your neighbours, and enable you to compete at a floricultural exhibition, you must be content to pay for flowers of a higher character, which are warranted true to name, and which may therefore be expected to repay you for your expense and care. Get them from the grower if you can, for in changing hands seeds and roots often change names, and discredit the seller and vex the buyer. There are some celebrated growers of Ranunculuses who have devoted their energies especially to this root, and, without mentioning their names, I recommend you to apply to them. You may select from their catalogues, and may rely on their sending you sound tubers. Indeed, if you state the size of your bed, you may leave the selection to them, as they are acquainted with the varieties whose combination will produce the happiest results. Another plan should be mentioned as suitable for those who may not be able or willing to incur much expense: get a dozen first-rate roots, and placing them in different parts of the bed, fill up the spaces with common ones.

If you are not able to proceed as directed, but are obliged to use your own judgment in selecting, you must bear in mind that roots may be true to name, and yet in themselves useless. The great difficulty to be overcome in growing the Ranunculus is encountered after the bloom is passed away, and the roots will be either good or bad the following year, as they are then treated. On this subject more will be said hereafter. The criterion by which a healthy root is known, is the plumpness of the forked portions, and the fine velvety texture of the crown; especially the latter. The tuber itself may be small and shrivelled, and yet the crown will indicate a sound condition; while, on the other hand, a plumpness of the tuber is of no service if the crown is dull, and instead of becoming bright when rubbed by the hand or on the coat, crumbles away. Like the Dahlia, the tuber of the Ranunculus will be quite healthy in itself, even where all the young buds or eyes are destroyed; it may even live some time in the ground; but vain will be the expectation of seeing a green shoot! When the substance of the tuber is well filled, and the crown is glossy, success may be confidently expected, as far as the roots themselves are concerned. It should be remembered that the silkiness of the crown, although always present in some degree, increases as the growing season advances.

The Turban Ranunculus makes a very splendid show, and I wonder it is not more grown in large gardens, as beds of it, each filled with flowers of one colour, would have a most imposing effect. The various kinds of Turbans may be purchased for three or four shillings a

hundred. As an early flower, it is worthy notice. I have had yellow Turbans off bloom and ready to be removed by the second week in June, in time for filling the beds with greenhouse plants. The Ranunculus may be taken up without injury as soon as the flower is withered, if the mould is allowed to adhere to it, and all the roots thus removed are put into the ground in a place secured from rain. They will then gradually become fully matured, and may be cleared away in July. This latter circumstance removes the objection of the beds being occupied too long to allow their being afterwards filled with flowering plants. Half-a-dozen beds on a grass-plot would present a gorgeous sight in May and June.

VII. POTATOES.

The few past seasons having been more favourable to the Potato than some previous years, encourages us to hope that by care and skill in cultivating, this valuable vegetable may be preserved to us. For amateur gardeners, we would recommend growing only early kinds, unless any feel disposed to institute experiments; this may be done anywhere, and those who have time for careful observation may do good service in this way. We have often made the remark, and now repeat it, that the possessor of the smallest garden may make discoveries which shall have a bearing on the wealth of nations.

The sooner Potatoes of every kind are in the ground

the better; but this is indispensable with the early sorts, such as the Ash-leaved Kidney, if the produce is wanted for the table. I will detail the plan I have pursued in my own garden, and shall be happy if any part of it is of service to my readers. I first looked over my stock, and separated those which had sprouted from the rest, taking care not to injure the young shoots; for it is evident that much time is gained if we can plant a potatoe which has already made some advance in its growth, not to mention the exhausting effect of a healthy sprout being broken off. The spot I chose for planting was that occupied last year by Scarlet Runners, the soil there being light, and having in it the thoroughly rotten manure employed for that crop, nothing being more certain than that fresh dung or strong stimulating soils are unfit for Potatoes. I dug out a trench with a fork about six inches in depth, loosening the subsoil as much as possible as I went along, and into the trench I put a good layer of old straw, Potato haulm, or other dry and light rubbish. The Potatoes were then carefully placed in the midst of the straw, the shoot upwards, and a good sprinkling of dry ashes was laid over the whole. The soil which had been turned out was then put back, and the rows finished off with a gentle ridge. A little early Radish seed might be sown on the top, and would do well if covered lightly with long litter. Potatoes treated in this way will be kept from an excess of moisture during heavy rains, the tubers will more freely expand, and the ashes will check the depredations of insects.

Notwithstanding the information which has been

diffused in so many ways respecting the importance of planting Potatoes in the early spring, and even in winter or autumn, it is to be lamented that great ignorance and perverseness still exist on the subject. A lady in my neighbourhood recently jogged the memory of her gardener (a professional man), and wished him to get in a few rows of Potatoes, but he told her it would be of no use doing so, *since the frosts would be sure to kill them.* This is adherence to old custom, in opposition to the new light of science and experience. I have no doubt that the same wiseacre keeps his tulips out of the ground until the shortest day, according to the orthodox statute made and provided. I have a great respect for gardeners, but I must say their usefulness is much crippled by their dogged determination to learn nothing but what they can weave out of their own brains, in addition to the traditionary lore in which they have been brought up.

I found the following in an old cyclopædia, among many other practical matters, regarding the Potato :— "*Method of Raising Potatoes in Winter.*—Make a compost of earth, sand, and coal ashes. With this mixture fill a tub about 16 inches deep. Plant this artificial soil with some sets of the early round Potato, and place the tub in a stable opposite to a window, taking care to water the earth now and then. In all seasons the sets will sprout and give a tolerable increase of Potatoes. Last November, I planted some sets in the above manner, and in February following I took up a considerable number of young Potatoes, clean skinned and well flavoured."

In reference to the general cultivation, the first thing to be done is to get good seed, and to obtain it as far as possible from the scene of action. In some neighbourhood, all potatoes are related more or less remotely; and in order to be free from the injurious consequences of this "in and in" system, sets should be procured from as great a distance as possible, that all the advantages of a change may be made sure. Plant in sets, having at least two eyes in each, in rows a yard apart, and distant from each other nine inches in the row. The general principle that every plant should have room to grow, without depriving its neighbour of sun and air, is especially applicable to the potato, whose tubers can only be brought to perfection by a full quantity of those natural agencies. Should the disease break out again, it cannot have a more congenial sphere for its ravages than a plot of Potatoes with weak and elongated stems produced by overcrowding. The rows should be a good distance apart for another reason, namely, to allow of earthing up. If it is excess of moisture which is so fatal to the tuber at the later period of its growth, earthing up will in some measure counteract the evil. The plan recommended of covering the advancing stems with mould, which seems to have sound reasoning for its basis, can only be adopted with advantage by planting at considerable distances.

Numerous experiments have proved that the soil for Potatoes should not contain rich and exciting manures; but anything which acts mechanically, by keeping it light and open, cannot be too highly recommended. I

have been carefully collecting all the soot and ashes the premises will yield; also brick rubbish, and the bottoms of wood cellars and faggot heaps. I should like a quantity of old thatch if it were available, and then all these materials mixed together would form an unexceptionable compost. Those parts of the garden will of course be chosen which grew other crops last year. The fork is the only tool necessary, except in sandy soils. To work with a spade, except for the purpose of excavating or digging holes, is most barbarous. Everything should be done to render the soil as light as is practicable, and a spade cannot accomplish this end at all like the fork.

If the gardener has not at command the materials recommended as compost, he had better do without any than employ stable dung, however rotten it may be. A *poor soil* is far more favourable for the growth of sound Potatoes than a rich one, and it is pretty certain that we owe the disease to the habit of using stimulating manures. There should now be no delay in planting, as the danger to the crop increases with every week of postponement. Plant really good tubers in the way we have pointed out, and you will have done all that you can to get a remunerating crop.

VIII. ON THE MANAGEMENT OF A HOTBED FRAME.

Among the luxuries of gardening must be reckoned the possession of a frame, and the ability to use it. It is

quite impossible for a garden to be conducted on a useful and elegant scale without this auxiliary, and therefore all amateurs should know how to turn it to account. The coldness of our springs, and the lateness of our summers, must throw many tender productions of nature out of cultivation, unless art is invited to our aid. The object of a frame, therefore, may be defined to be the anticipation by artificial means of the temperature of our summers, by means of which, tender plants may be forwarded, and have conferred on them a prolonged existence. There are, indeed, numerous purposes answered by this contrivance; but this principle pervades them all. If we were to wait until summer heat brought forth exotics in a natural way, we should never enjoy the fruit of our labour, since an early declination of temperature would nip and destroy our favourites before they had attained to maturity.

I am not now writing for those who can command a regular and scientific system of heating, but for those who are obliged or willing to be contented with the more humble and primitive apparatus of a *hotbed*, a contrivance which, although humble, is eminently efficient for all ordinary gardening operations. The materials of which this bed is composed are fermenting animal and vegetable substances, supplied by stable-dung and litter; which, when duly mixed and prepared, retain a genial heat for a long time, and can have the heat easily renewed when it becomes exhausted. The mode of preparing this rather unpoetical affair has been very poetically and correctly described by Cowper, in that part of the Task entitled "The Garden," to

which I refer my readers as a specimen of the way in which common things may be adorned by genius. The following quotation describes better than I can in prose the principal operations in building the hotbed :—

"——— First he bids spread
Dry fern or littered hay, that may imbibe
The ascending damps; then leisurely impose
And lightly shaking it with agile hand
From the full fork, the saturated straw.
What longest binds the closest, forms secure
The shapely side, that as it rises takes,
By just degrees, an overhanging breadth,
Sheltering the base with its projected eaves.
The uplifted frame, compact at every joint,
And overlaid with clear translucent glass,
He settles next upon the sloping mount."

The bed should be at least a foot wider than the frame on every side, and must be evenly and regularly made, that all parts may sink equally. The dung must not be trodden down, but may be lightly pressed by the fork as the building goes on. As the materials lessen in bulk as the fermentation proceeds, it will be necessary to raise the bed to at least double the height it is intended finally to be. This is important, for I have known persons inexperienced in such matters put the frame on a mass about three feet in depth, and it has soon sunk to one. A good plan is to sink a pit three feet deep, and having filled it with dung in the right state, to raise the heap six feet from the surface. The gradual subsidence will thus bring the top of the bed to within three feet of the ground, which will be found a very convenient height.

The frame should not stand on the dung, on account

of the injury thus done to the wood, but on bricks or planks. Having arranged the frame, throw in fine turfy loam to the depth of six inches, and let it be levelled. I am now speaking of a bed for general purposes, and not for Cucumbers, for which the treatment must be somewhat varied. The bed is now fit for use, as soon as the first furious heat is reduced to a healthy temperature, which may be ascertained by sticks thrust into the sides of the bed. If the heat declines, the projecting sides may be taken away, and fresh dung put in their place. This will often be necessary early in the season, but if a good bed for general purposes is set up now, there will be sufficient heat until the season is so far advanced as to render an addition no longer requisite. In such a bed as this you may force Strawberries, grow Cucumbers and Salads, strike cuttings, and forward tender annuals. Dahlias may be put in at once.

The mention which has been made of hotbeds, reminds us that it may be of some use to inform the reader how we proceed in making those slight ones which are often wanted even in the summer months. All weeds—root, branch, and seeds, as the case may be —are thrown together until a considerable quantity is obtained, none being allowed to remain on the land after hoeing. With this the mowings of the lawn are well mixed, and the whole ferments sufficiently to destroy all vegetable life in the shape of roots and seeds. This alone amply repays the labour; but besides the advantage of preventing an after sowing of weeds in the garden, which is the case when refuse is allowed to

rot merely, a gentle hotbed is always ready at hand. When a large amount of unfermenting material is collected, as the turf cut off from the verges of the grass plots, &c., a few barrow-loads of stable manure may be added. In this way a good supply of the very best compost for all gardening purposes is provided, at the smallest possible expense.

March.

"——— So MARCH, though his first mood
Was boisterous and wild, feeling that shame
Would follow his full steps, if Spring's young brood
Of buds and blossoms withered where he trod,
Calmed his fierce ire. And now blue violets
Wake to new life; the yellow primrose sits
Smiling demurely from the wayside clod;
And early bees are all day on the wing,
And work like labour, yet like pleasure sing."

Cornelius Webbe.

THE CALENDAR.

Flower Garden.—Hardy annuals may be sown in places where they are to remain, although it is generally best to sow in a cold frame, and then transplant at the end of April. Dahlia roots must be started in a gentle hot-bed or in the greenhouse, and the shoots potted off when about an inch or two long. As bulbs go out of flower in the greenhouse or window, let them be carefully turned out to a warm place in the garden. All plants in pots, struck last year, should now be repotted for blooming. Those intended for bedding out must be kept from growing too fast by being put into cool places. Plant Anemones and Ranunculuses, and protect beds of Tulips, &c. from severe frosts. Grass-plots may now be laid down, and box edgings planted. Turn gravel

walks, if necessary, and keep them and the lawn well rolled. As Holyhocks and other herbaceous plants advance, thin out the shoots, as on this will depend the fineness of the flowers.

Kitchen Garden.—Get in all the main crops whenever the soil is in a proper state. Soak Asparagus and Rhubarb beds with soap-suds and other liquid manure, and apply salt in moderation as recommended elsewhere. Small salads may be grown in south borders. Lettuce and Radishes should now be sown every fortnight for succession. All crops of Potatoes should be in the ground this month if possible. Plant out Cauliflowers under glasses.

I. ON THE CULTURE OF ANNUALS.

From the numerous advertisements of annual flower seeds, we may presume there are vast numbers of buyers, and when the beauty of this extensive tribe is considered, we cannot wonder this should be the case. To depreciate annuals would indeed be a tasteless and a hopeless task, since they are worthy the best treatment, and are of such essential service in most gardens. My object will rather be to direct and regulate, and not to discourage the growth of annuals. I shall therefore make some general remarks on annual flowers themselves, and then lay down a few rules for their successful culture.

In gardens of great extent, there is a capacity for growing almost everything to advantage. Some plants are attractive anywhere; others make the best appearance in situations where a close inspection is possible;

but many are not fit for confined situations, and when they are admired it is confessed that "distance gives enchantment to the view." The common Sunflower is ungainly and awkward in a little suburban garden, but it tells well in a plantation, or when it can be seen afar off. The same may be said of the Orange Erysimum; its colour renders it invaluable when grown in clumps for general effect, but how miserable it looks when found in a small mixed flower-bed? In growing annuals, therefore, their size and habits should be diligently studied, as well as the extent of the garden which they are intended to adorn. If this rule is neglected, amateurs will be disappointed when they purchase seeds which may have been justly commended. When grown and in flower, it may be true they are individually beautiful, but they may not be in keeping with objects around them. Great care should, therefore, be used in selection, if the time and money of the amateur are not to be wasted.

For small gardens, shrubby and compact greenhouse plants which do well in the open ground in our summers are much to be preferred to many annuals. Pelargoniums, Fuchsias, Calceolarias, Verbenas, Petunias, &c., may be preserved with ease through the winter, and by careful management may be turned out in May and June in a blooming condition. Every observer of gardens must see the vast superiority in point of beauty and finish which these exotics possess over most annuals. If, then, you are limited for room, select only those annual flowers which grow compactly, and which continue long in bloom. The Mesembryanthemums

are admirable in these respects, but they require more sun than we generally get in England. However, I cannot recommend the sorts to be preferred, since tastes so much differ. Some seedsmen send out catalogues, which give the heights, times of flowering, colours, &c., of all the seeds they sell; and the amateur will do well to use one.

Annuals should have plenty of room for the development of their peculiarities. They are generally planted too closely, and thus their beauty is not seen. As to the method of raising them, I would decidedly recommend a seed-bed for most varieties, in preference to sowing them where they are to remain. Many sorts are too tender for early sowing. Then insects torment you; for if your stock is dispersed through the borders, you cannot keep your eye on the scattered portions as you can when it is together in a bed. Besides, transplanting is, in most cases, an advantage, and secures greater vigour to the plant, provided it is properly done. Raise your seeds, then, on a gentle hot-bed, and when they are developed in strong plants, remove them to their destined quarters. When you are anxious to have them flower early, or where the seedlings are impatient of removal, it is a good plan to pot them when only half an inch high into small pots, two or three in a pot. You can then get them forward in a frame, and turn them out when frosts are over, without the plants receiving the slightest check.

There is an annual, the beauty of which cannot be too highly spoken of, I mean the Phlox Drummondi. Its habit of growth makes it very desirable for small

gardens, as it is compact, and may be pegged down with advantage. Its varied shades of crimson are truly gorgeous when seen in masses. It continues in flower very late, and a slight frost will not much injure it. Sow the seed now. Sixpenny-worth will stock a large garden. By adopting the plan of potting the seedlings, by June you will have a supply of bushy plants, which will immediately flower and continue gay till October or November.

II. WINDOW FLOWERS.

The first observation I have to make respecting plants in windows is by way of caution; and the enemies against whom I would guard my readers are no other than cats! Yes, these miserable beings, not contented with raking up your seeds, and rolling their carcasses in your most sunny and promising parterres, will intrude into your drawing-room, and commit havoc among your most highly cherished pets. Cowper uses some very disparaging terms respecting the rat which devoured Lady Throckmorton's bullfinch, and I am disposed to be equally severe on the cats which one night overthrew my flower-pots, and broke and disarranged the plants. The affair happened in this way. We were awakened at daybreak by a most alarming din in the sitting-room beneath, in the window of which were some choice Roses and Pelargoniums. On proceeding to ascertain the cause, I found our own two

cats pursued by a black stranger, who had intruded through some open window in the lower regions, and to avoid whom, the cats sprung up to the window and overset all the plants. I should not have thought it worth while to relate this as a warning to others, if the case was a solitary one; but as it has occurred three times to myself within twelve months (in one case the cat effecting her exit by smashing the window-pane), it is as well to caution amateurs to exclude all such animals when they retire at night.

This is the season when those who do not possess greenhouses will see the reward of their care and labour in the blooming plants which have been tended by them in doors. The dry air of sitting rooms must be counteracted as much as possible by syringing, by exposure to gentle rains, and by admitting as much of the atmospheric air as can conveniently be done. Green fly may easily be kept down in small collections by picking and rubbing them off by the hand; or all the pots may be put into a frame closely covered up, and subjected to tobacco smoke. Do this in the evening and leave the plants till the morning, when they should receive a good watering by a fine rose or a syringe. Keep plants in pots moderately moist, without allowing water to remain in the saucers. By these means, and bringing in a succession as the former plants get shabby, a window may be made very interesting to the amateur, and an air of elegance and refinement be given to the dwelling.

Plants may now be cultivated in balconies, and on the stone in front of the window, so as to give a

beautiful and attractive appearance to the exterior of the house. Fuchsias do admirably well for this purpose, as they will continue to bloom until the frosts of autumn disturb them, and require less care than most plants equally showy. Let strong healthy plants be potted in 6-inch pots, in a light rich soil, and let these pots be dropped into others just large enough to admit the space of about half an inch all round; the inserted pot standing on moss or leaf-mould until its brim is on a level with that of the pot containing it. By this little contrivance, the hotest suns will be unable to scorch the roots of the plants, they will retain moisture longer, and will flourish more luxuriantly. If a drooping variety of Fuchsia is made to alternate with those of erect habit, a mass of bloom will be presented of great depth and richness. Other showy plants can of course be treated in the same way.

Take time by the forelock, and prepare for your collections next year, by purchasing or striking young plants. It requires some forethought to keep up a succession of window flowers without a greenhouse, but it may be done.

III. RHUBARB.

This wholesome and agreeable vegetable has become so popular as a substitute for fruit in the early spring, that no garden should be without it. It will grow anywhere, is so hardy that no frosts will injure the

roots, however much exposed, and is so prolific that a few plants will yield a plentiful supply of stalks for a large family. Yet, notwithstanding the ease with which it is cultivated, we often see it badly grown, and sometimes hear the complaint that parties have failed in their efforts to get a crop. Our remarks will obviate every objection, if attended to, and enable our readers to grow Rhubarb for themselves with ease and success.

Rhubarb has a hard underground stem, which pushes forth buds plentifully at the crown, or part nearest the surface; every one of these buds taken off with a portion of root adhering to it, will form a large plant in one season. If you wish to make a plantation now (although the season is rather too far advanced, it may still be done), get as many buds or crowns as your bed will admit of, allowing each two or three feet every way, according to the habits of the varieties you prefer. The plan generally adopted is to purchase as many roots as are necessary to fill the allotted space, but this is a more expensive and far less eligible method than the one now recommended. One season a new sort of Rhubarb was offered in the neighbourhood of the writer at 5s. a plant. Some of his friends purchased four or five roots, but he was satisfied with one. On receiving it he placed it in a hole, and covered it up with soil until February, when, on examination, five good buds were developed. The root was then divided into five parts, each of which, at the present time, is a large, flourishing plant, equal to any of those which were not divided. A bed was thus obtained for

5s., equal, indeed superior, to some costing 25s. We are convinced, from actual experiment, that Rhubarb may be brought to perfection in one year; that old beds are inferior to new ones; and that fresh plantations should be made every two years. The old plan of making a bed to descend to posterity should be exploded, in reference to many garden productions. Strawberries, Raspberries, Rhubarb, &c. &c., should be removed often, if fine healthy produce is wished for.

Having a sufficient number of buds or crowns, let them be planted in a well trenched and manured soil. If the leaves are developed, care must de taken to prevent their flagging. This may be done by placing over them some long litter, sufficient to answer the purpose without excluding light and air. The young plants will soon be established, and will grow rapidly. No leaves must be taken off the first year, as the object is to convey all the elaborated sap possible to the stem for future use. If the ground is good, and kept free from weeds, no more care is required, and abundance of fine stalks can be taken off next spring. An exposed situation, with plenty of sun and air, will of course bring this production to greatest perfection; but it will produce good crops without having these advantages fully. Every house with a garden, however small, may thus furnish the table of its owner, with little expense and trouble.

But Rhubarb possesses the advantage of being forced with as much ease and as cheaply as it is grown in the open air. This may be done by growing it against a wall in a sunny aspect, and covering it when

required with pots or boxes, over which fermenting materials must be placed. But decidedly the best method is to take the roots into the house to be forced. For this purpose they must be grown exactly as recommended above, that as much power may be treasured up in the roots as possible. To take up exhausted plants from a crowded bed, which has been stripped of its leaves during the season, is to deprive them of their natural advantages, and to expend the forcing process on weakened and imperfect subjects. Let cuttings, with a crown to each, be now put in, in the best possible situations, and by autumn they will be admirably adapted to your purpose. When the foliage is withered, take up the roots, and put them singly into large pots or boxes. These may be put away anywhere, and introduced, two or three at a time, into a warm situation. The writer once placed his pots in a dark closet, at the back of a kitchen range, and the Rhubarb grew rapidly. Every house can find some spot having the advantage of greater warmth than the ordinary temperature. Rhubarb may thus be had at any time, and a good supply kept up until it is produced in the open air. It is very necessary to get it as early as possible, as its value is much lessened when Gooseberries are plentiful.

IV. ON SEED SOWING.

This season of the year will render more appropriate than at any other time some observations on what is a most important subject, although it may appear to some readers too plain and commonplace to need any comment. As the commonest terms employed in the language of ordinary life are those around which ambiguities and errors are found to cluster, so in all arts and sciences first principles demand earnest consideration as the fruitful source of success or failure. Most observant persons must have remarked that in gardening, in all its branches, a few scientific rules rationally observed are the strongholds of the best cultivators. Let these be understood, and after processes are easy; let them be neglected, and no other advantages will compensate for the loss.

In March and April all the main crops in the fields and gardens are expected to be in the ground, and Divine Providence has given to this time a seasonal character, adapted expressly to this important end. The temperature is raised; the soil is made dry and light by continued winds; while frequent showers support the germ until its deeply struck roots make it less dependent on the state of the surface. Contemplating this arrangement with docility, we shall imitate it in our little operations. A finely pulverised soil pressing on all sides of the seed is found to assist its germination; too much moisture causes it to rot, while a moderate degree of humidity is favourable to a vigorous growth. We shall apply these general remarks to the various departments

of seed-sowing which are interesting to gardeners, both in the flower and the culinary departments.

Never attempt to sow vegetable seeds when the soil is so moist as to stick to your feet. Patience is exercised by delay, but the rule ought to be adhered to, for Peas, Beans, Onions, &c., put into the ground when it does not crumble under the touch of the hoe, cannot do well. The soil cannot then be pressed on the seeds except in a hard clayey texture, inimical to growth, and the surrounding land will be rendered hard and impervious to light and air by the treading. The same remark fully applies to Potatoes, for the lighter the soil is the better the crop will be.

If we follow Nature we shall not sow very deep, for all observation shows that even without any covering, seeds will germinate and prosper. Acorns, Nuts, Peas, &c., left where they fall and undisturbed, are sure to push roots downward. It would not do to place our rows of Peas on the surface, for they would be disturbed in various ways; but when we cover them with soil, let it not be too deeply. If the ground is in a proper state, seeds should be trodden or rolled in. One year I took the advice of a writer on gardening, and rolled my Onion-bed, when sown, with a heavy garden roller. I think I perceived the advantages of the plan; for the crop was certainly excellent, less disposed to run to neck than ordinarily. After sowing, if the beds or rows are not too extensive, it is better to guard at once against birds and cats by a slight covering of brushwood. I use Pea-sticks, laying them along the rows of Peas and Beans, and upon seed-beds. As soon as the Peas are up, the sticks are on the spot for their destined service.

In reference to annuals and other flower-seeds, the same rules apply. Flower-seeds, sown in the open air, should not be put in too early, however inviting the weather may be. Stocks, Marigolds, &c., sown in the end of April, will often be more forward than those put in in March. Heavy rains and cold winds stunt the growth of the seedlings, and frosts sometimes destroy them altogether. But my plan, as before stated, is always to sow annuals in a frame, and transplant them. When this is done, the beginning of April is early enough. In sowing, care is required, or the moist heat of a frame will rot the seeds. The soil should never be wet. It will be found that small seeds will grow in mould which appears dry better than in that which is sensibly wet. Abundance of air must be given.

V. ON THE CHOICE OF FLOWERS.

We will suppose the possessor of a garden is desirous of making it as interesting and gay as possible during the coming season, and is asking our advice in the matter. The reply must be regulated by various circumstances which modify the arrangements necessary for this end, such as the present state of the garden, whether stocked with trees and shrubs or not, whether large or small, and whether much of it is laid down in Grass. Many things are essential to the beauty of a garden besides good flowers. In autumn and winter the general

laying out should be attended to, and if alterations of taste are demanded in the arrangement of the grounds, they must be deferred for the present. Our advice will relate to the general question, and point out what productions will make a garden of ordinary size more beautiful and attractive.

The old custom is to sow seeds of annuals in every vacant spot, and let them take their chance for the summer. Now annuals are very well in certain connections, but their extensive growth in small gardens is indicative of bad taste, for they are mostly of straggling habit, and soon lose their beauty. I would have very few annuals in limited spots, and then only such as Clintonia pulchella, the Mesembryanthemums, Nemophila, &c., which may be selected from a scientific catalogue, like that published by Mr. James Carter, of Holborn. This catalogue I have found of the greatest utility, as it describes the colour, size, time of flowering, and general habits of all plants raised from seeds. As to Sunflowers and Hollyhocks, and all such giants, they are inadmissible in small gardens. The Hollyhock is a great favourite of mine, but it must have room, and be seen from a distance. Nothing can be more inimical to the good adjustment and tasteful appearance of a garden than a crowded state of vegetation, shading the beds. No plant will come to perfection in such circumstances, and before autumn there will be a mass of entanglement, defying all efforts to arrange it, and demanding rooting up as the only remedy.

The Rose naturally is first in the list of plants which every garden may properly cultivate. It will submit to

narrow limits, and may be had in pots for turning out, so that an amateur may have a choice collection of Roses at once. Beds of these are recommended, as well as isolated specimens. The China, Bourbon, and Hybrid Perpetual varieties may now be procured cheap enough, and if planted now, every advantage will be secured. Let the purchaser be well convinced of the honesty of the parties from whom his stock is procured. The writer once ordered a small collection of Hybrid Perpetuals in April, and received, instead of strong plants, little things which had been struck in heat, were scarcely rooted, and which, after three years, still looked dwarfish and sickly. Even nurserymen of first-rate character are apt to forget the impossibility of plants doing well, when removed from a greenhouse to a garden. Disappointments of this character, to our certain knowledge, injure and restrict the trade in flowers.

Next to Roses come the tribes of exotics, which are adapted to our summer climate and make such a gorgeous show. Scarlet Pelargoniums, Verbenas, Petunias, Fuchsias, Calceolarias, and many others, offer to the amateur opportunities of gratifying his taste at a small expense. These may be arranged according to the various colours, and will continue to bloom profusely until the autumnal frosts. They are, most of them, compact in their growth; their foliage is less deciduous than that of annuals; and their whole appearance has that tropical character which gives such a charm to gardens in the present day. The expense may be an objection, but such things become cheaper every year, and if the reader is disposed to acquire the easy art of

propagating plants for himself, the first expense is the only one. Before the summer is past, a few purchased plants will have spread so as to allow many cuttings to be made from them, which in methods afterwards to be described may be easily preserved during the winter. We lay much stress on the employment of shrubby exotics for the adornment of summer gardens, because it is found by experience that they are kept in order easily, and are inimitable in their power of furnishing exquisitely varied groups.

VI. ON NEATNESS IN GARDENING OPERATIONS.

Every one who has an acquaintance with gardens, however limited it may be, must have observed a certain grace by which some are distinguished from others, quite independently of the expensiveness of the arrangements, or the quality of the flowers. This grace is neatness, and it confers the same character on a garden as it does on a human being. It makes up for the deficiency there may be in other qualities, and gives a higher polish to those which may be possessed. Even in the most sterile months of winter a neat garden possesses attractions, while a slovenly one, however extensive and well filled, seems to combine with the asperities of the season in rendering itself hideous.

The spring peculiarly demands an attention to neatness, because vegetation then possesses a vigour which

must be kept down with a resolute and attentive hand. Weeds grow rapidly, and lawns soon become long and rough. Yet what garden can look well which has many weeds either in the beds or paths, or a Grass-plot unmown? Let us begin, then, with the lawn, and by early mowings a finished air will be imparted to the garden, and a fine surface secured. Dandelions, Plantains, and Daisies may be rooted up, observing this rule, to cut below the crown of the plant. If there are many of these among the Grass, care must be taken not to extirpate so fast as to leave bare places, for this will be to exchange one deformity for a worse. Occasional sweepings to get rid of worm-casts, constant rolling, and the frequent use of the scythe, will secure neatness in the appearance of that beautiful evergreen the Grass-plot.

Clipping the edges of the Grass when it skirts gravel-walks or flower-beds, is an operation very necessary to the production of a neat appearance. Where this has been neglected for any time, the best way is to cut round with a turfing-iron or sharp spade, so as to secure a well-defined outline. If this is done once in the season, it will be sufficient, provided the shears are in weekly requisition; indeed, if clipping is regularly and properly performed, cutting with the spade will scarcely ever be necessary. Box-edgings must also be subjected to the shears, if not done before. A line stretched with discretion will be sufficient guide both for the lateral and vertical sections. If there are edgings composed of flint stones in any part of the premises, and the stones have been misplaced, a clever labourer will soon take them up and properly arrange them.

Gravel walks should be weeded thoroughly, and then scratched over with a rake, so as to loosen the surface a little. The roller will then produce a uniform effect. Frequent rolling must be practised, or worm-casts will soon disfigure the paths. In some cases, as when there is much loose gravel kicked up in a long period of drought, it is best to roll immediately after a heavy rain, when the soil is thoroughly wet. All will thus be brought to a concrete state, and retain a smooth appearance for a considerable time. Many things have been said and written respecting expeditious modes of freeing gravel walks from weeds and mosses, but the best recipe is labour. Hoeing and rolling will answer every purpose, without having recourse to empirical and uncertain novelties.

All beds must, of course, be kept free from weeds; and the surest way of effecting this is by constant raking, so that they shall have no opportunity of growing. If flower-beds can be raked once a week it is desirable; but neatness cannot be secured if more than a fortnight is allowed to elapse. Amateurs need not be told that to rake well is rather a difficult attainment. Some bring the soil into ridges by the operation; others cannot get rid of stones without the labour of taking them away. Practice will enable any one to rake the largest beds evenly, and without being encumbered with much rubbish. There is a mode of turning in stones, &c., which saves much time and trouble. If after every raking a barrow-load of rubbish is taken away, it is evident a large diminution of the material of the bed must soon take place. Where gentlemen or ladies are

their own gardeners, they may derive immense service from the united labours of two or three intelligent children, whether girls or boys. In "clearing up" their assistance is invaluable, since there are many things a child may do as quickly as an adult. The presence of the parent will inspirit the youngster, and they will be taught betimes to engage in a useful and amusing exercise, two qualities of youthful work not always combined.

VII. ROSES.

In ordinary seasons all work required in relation to Roses should have been already performed, but if continued cold weather has delayed these operations, a little advice may not even now be out of place. These beautiful flowers will always require attention in every garden, and although in some senses they are independent of careful culture, producing flowers however much they may be neglected, it is astonishing what a difference is produced in them by a scientific and tasteful appropriation of human skill. The choice of proper soil, the methods of planting, manuring, pruning, and training, are matters which require thought, and will well repay it. The increased number of first-rate perpetual Roses, by prolonging the time of blooming, give additional incentives to cultivate the flower, and by a proper selection out of doors, and a few choice specimens kept in a greenhouse or a frame, the amateur may with ease have Roses in bloom all the year round.

You may safely purchase Roses now, as they will suffer but little if carefully removed. Buy as many as you can in pots, and let the transplanted ones be kept moist at the roots. A little extra trouble to secure this latter requisite will not be thrown away, for nothing is more absurd than to expect a free growth from plants which have left half their roots in their old habitat, and the other half of which are allowed to become as hard and dry as an old birch broom. Arrange the roots carefully in planting, not vertically, but in a radiating horizontal position, and as near the surface as possible, consistently with the stability of the tree. Let the soil be rich, and at this late period a mulching of rotten dung placed on the surface after watering will be an excellent safeguard. From a catalogue or from the experience of a brother amateur, select a variety of sorts so as to have some of the earliest and latest kinds. At planting use judicious pruning, keeping in view the shape you wish the plant ultimately to assume. If it is desired to have a tall growth, prune out all but two or three of the largest shoots; but if a dwarf or compact habit is wanted, make a low head at once. Observe the position of the bud you prune to, that it may take such a course in its future growth as will promote and not hinder the beauty of the tree.

Supposing your garden is already stocked with Roses, the whole collection must now be looked over, and the final arrangements made in reference to their future growth. If a severe winter has committed havoc among the tender China and Tea sorts, they may be cut down to the ground with advantage, especially if planted

in small beds in collections. It requires some degree of courage to use the knife so unsparingly; but unless the branches which have survived the winter are healthy, no good purpose is answered by allowing them to remain. If cut down to the ground, young vigorous shoots are sure to be put forth, and in small beds these will produce flowers near the ground, or at all events a better general effect will be secured than is attainable by leaving the half-blasted stems which the winter has spared. The hardier kinds of Roses, which have defied the frosts and cutting winds, will require to be attended to according to the principles mentioned above—that is, their destination as pillar Roses or dwarfs being considered. I have secured a fine effect with many Gallican and hybrid China Roses, by training them as high as possible, and fastening them to stakes, so as to form a pyramidal style of growth, which in favourable years will exhibit flowers from the apex to the base in abundance. In pruning, remember, as before hinted at, that the last bud should incline in the proper direction—a simple rule too much neglected by common gardeners. Tie up with stout string, or, what is better, with garden wire. Never allow yourself to be foiled with a weak stake, or an imperfect tie. The writer has acquired wisdom in staking and tying from living in an open boisterous situation, and having been repeatedly foiled in his attempts to make all sure and fast, has determined in future to take trouble at first, so as to defy all the stormy winds that may blow.

Budded standard Roses must be looked over, for the purpose of destroying in the embryo all shoots from the

briar, which would otherwise much weaken the grafts. The heads of these must be very carefully tied up, or they will break off at the insertion, when the wind is high—a most mortifying and temper-stirring catastrophe! If you wish to become a budder you may yet lay in a stock of briars; or if you have any briars not budded last year, prune them so as to leave nothing but the stem. As buds are afterwards protruded, destroy all but three or four in the position you require them for future operations. Those buds which were inserted in the autumn will now need a little attention. Clear away the bandages, and remove all the buds of the wild stock except one just above the bud inserted.

VIII. THE DAHLIA.

The writer can well recollect the time when the Dahlia first attracted general notice in this country. At first it was confined to a few aristocratic possessors; but from its Potato-like fecundity, it was not long before it dispensed its favours among all classes of the community. The gorgeous flowers displayed in the shops of florists, excited an ambition in the beholders to possess such a novelty, and they were soon gratified. A very short time sufficed to introduce the plant into the cottage garden, and now it may be said with truth that the Dahlia is as common as the cultivated Daisy. This democratic quality has induced some persons to undervalue the flower; but it has claims to attention so

undisputed, that it is not likely to cease being a favourite.

As an autumn flower, the Dahlia is indeed invaluable; with this drawback, however, that the early frosts of Great Britain attack the plant when in its greatest beauty, and in one night turn a garden splendid with every colour, into a wilderness. It is after the summer heats are softened down into the humid coolness of autumn that the Dahlia displays its greatest charms; and yet that is the season of greatest danger. Gardens in low situations are attacked by frost much sooner than those on elevated spots; and it often happens that the amateur whose scene of operations is most favourable to fertility and beauty, is mortified by finding his Dahlias destroyed in the middle of September. However, this is not always the case, and in many gardens this plant blooms to November. Its growth is therefore an object of interest to all lovers of flowers.

If you are about purchasing a collection of Dahlias, bear in mind that *fashion* must be paid for, and that new varieties are not always superior to old ones. That there has been an immense advance in the quality of this flower there can be no doubt; but it is not to be expected that every year will produce novel and superior sorts. Make a selection from the older and more established kinds, by the assistance of an amateur or a respectable florist. Endeavour also to get your plants early established, for it is of little use putting out in May a little spindley production an inch or two long. Such a plant will probably make a good root for next year's culture, but it can scarcely be expected to attain

to perfection in the present season. Buy as early as you can, and put the pots in a frame, and if they grow large, repot them, and thus train them till danger of frosts is past. Indeed, in small gardens, with very cautious owners, it is best to put out the Dahlia by the 1st of May, taking care to cover up at night.

If you have old roots, they should now be plunged in mould in large pots, and put into a gentle heat in a frame or a greenhouse. Take care to have the crowns covered an inch with earth, for it is always found that shoots springing out of the soil are stouter than those pushed forth by the dry and bare crown. When an inch or two high, cut up the tuber, allowing a good piece to each shoot, and put each one into a pot. A little bottom heat will soon produce plenty of roots, when the plants will be ready for the border. A soil with good drainage, and yet in itself rather retentive of moisture, will be found the best. But manure should be avoided, as it induces rankness of foliage at the expense of the flowers.

IX. INSECTS.

The cultivators of the soil both on a large and small scale require a considerable portion of patience, since their efforts are continually opposed by numerous tribes of depredators. Each season brings with it peculiar enemies, whose attacks will soon overturn the efforts of labour, and taste, and skill, unless they are diligently guarded against. Birds will rob you of all your seeds before one is allowed to germinate; cats will disfigure

your flower-beds and most provokingly scratch up young plants, however choice they may be; hares and rabbits will nibble off Carnations and Pinks, leaving only some unsightly stumps; and moles will form miniature tunnels under the roots of Roses, &c. On the morning in which I am now writing, the last pest has regularly ploughed through my only Ranunculus bed, and has turned topsy-turvy some of the best roots. Lastly, the noble race of man will often sadly perplex the amateur gardener. Children do not hesitate sometimes to run over a flower-bed in search of a ball; and adults who are ignorant of the mysteries of floriculture, often leave their odious footprints on spots where tender seedings are just coming up. Verily, we need the patience of Job in the midst of such repeated and constant inflictions.

Long as the above catalogue is, it includes only a few advanced skirmishes of the camp of the enemy, for myriads of insects are always pursuing their destructive tactics in a greater or less degree. How can the pen adequately describe the mischiefs wrought by the slimy race of slugs and snails? In frosty weather, indeed, these ruthless foes disappear, or a long drought may seem to have driven them away, but let a mild day visit us even in the middle of winter, or a shower of rain lay the dust of summer, and there they are, devouring all before them, as if called into new life. Woe be to the florist in whose frame two or three slugs lie concealed. How often has one, in a single night, marred the labour of months. Then come the woodlice, having a fine taste for all that is tender in vegetation, from the coty-ledons of seedling Ranunculuses to the petals of Roses.

Earwigs hide their detested shapes in every hole and corner, and, assassin-like, deal their deadly bites under the cover of darkness. Red spiders and the green fly bring up the rear, and with wonderful fecundity multiply by thousands in a day, till the unhappy gardener is almost at his wits' end.

The mention of the earwig justifies a longer allusion to that foe to florists. The name itself brings to our remembrance the disappointment so often felt, when, having succeeded in getting a good bloom, our labours are neutralised by the fine teeth or mandibles of these insects ruining in a night the finest specimens. How can they be guarded against? No doubt by a greater acquaintance with the habits of the insect, and a more diligent warfare against it in all its stages of growth. But as this radical eradication of the pest is not to be looked for, we can only indicate the modes of checking their propensities, in some particular case. They may be caught by hundreds and killed, by Bean-stalks placed among the foliage, or small pots half full of moss on the tops of the stakes. But the mischief is then partly done, as will be manifest from the colour of their internal juices, which are yellow, crimson, or orange, according as the flower they have been eating is of either of those hues. It was once thought possible to prevent their ascent by water-pans, or by wool tied around the stem; but it is now known that earwigs have wings, and are consequently not dependent on their feet for access to their food. That they can fly is undeniable, but that they exercise the power much may be doubted. I never saw one on the wing, nor even preparing for flight, al-

though I have been out in the nights of summer repeatedly, and watched their movements with a candle. I am inclined to think that the faculty of flying is but rarely used, and that, therefore, while traps should be placed to catch them, means should also be taken to prevent their ascending to the flowers. It is known they dislike cotton or wool, which entangles their feet, and perhaps some oily substance in addition would effectually repel them. The wool should be tied lightly around the whole stem and the stake, so as to render ascent impossible without passing over it.

The above are all either dwellers on the surface of the ground, or carry on their operations there; but there are other insects, whose attacks are concealed beneath the soil, and which it is still more difficult to guard against. In the early spring, the wireworm saws away at the lower stems of Pansies and Carnations, and we know nothing of the matter till the withering of the whole plants makes us acquainted with our loss. Through all the year, larvæ of various kinds thus blast the hopes of the cultivator by undermining or destroying the roots. In short, the attacks of enemies are constant, and therefore war must be interminable. A gardener must necessarily be a great destroyer of life, or that life, if spared, will soon destroy him. You must indulge no sentimental notions respecting the happiness the poor insects enjoy, and of which you are about to deprive them; nor must you entertain transcendental or metaphysical opinions as to their capacity for pain. The sentiment of the gentle Cowper respecting the impunity to be granted to the snail who crawls in the evening on

the garden path, is generally good, but by the florist it will be received *cum grano;* nor will the dictum of the immortal Shakspeare be practically believed, when he tells us the beetle feels as much "as when a giant dies." Such theories cannot stand in the way of practical utility, and if gardens are to flourish either for beauty or usefulness, the insect tribes must die. Young gardeners are often very squeamish on these matters, and certainly great snails, with their houses on their backs, are rather awkward things to kill. But the more you kill, the sooner the work will be done, and by industry and perseverance, you may soon be relieved (as far as snails are concerned) from the task of killing at all.

April.

"Descend, sweet April, from yon watery bow,
And, liberal, strew the ground with budding flowers,
With leafless crocus, leaf-veiled violet,
Auricula with powdered cup, primrose
That loves to lurk below the hawthorn shade."

Graham.

The Calendar.

Flower Garden.—Auriculas in pots will require great attention this month, to guard them from early frosts and heavy rains. The same may be said of choice tulips. Carnations must be put into their blooming pots as early as possible. As Pansies flower, take off cuttings and strike them for a later bloom. Watch the growth of Ranunculuses, and treat them as before directed; take care that the beds never get dry. A general sowing of annuals may take place at the end of the month. Harden annuals grown in frames, by exposing them all day, and only covering up in the evening. Regulate the stock of plants for bedding out, so as to check a too rapid growth. Mow the lawn frequently, and keep down weeds by frequent raking. As the season advances, give more water to plants in the greenhouse and sitting-room.

Kitchen Garden.—All the main crops should be got

in as early as practicable, except Turnips, which must be sown sparingly at present, since they are apt to run to seed. Sow Lettuce and Radish every three weeks for succession crops—Peas the same. Scarlet Runners are very sensitive of frost, and therefore ought not to be out of the ground till May, unless protected; but they may now be sown in pots in a cold frame, and afterwards transplanted for an early crop. Slugs should be carefully looked for and destroyed. They may be taken under pieces of slate or cabbage-leaves placed on the beds infested by them; and, in convenient positions, a search by candle-light on a still, warm evening, will supply abundance of such game. Lime-water we have found to fail, unless applied two or three times in quick succession, for the slug throws off the slough produced by a first dose, and emerges apparently uninjured.

I. EXOTICS FOR BEDS ON LAWNS.

Let me premise that the beds intended for effect in summer should be unoccupied by herbaceous plants or other productions which do not naturally decay at the close of spring, as the old fashioned flowers of our gardens do not harmonise well with greenhouse plants; and besides this, each bed should be devoted to one kind of flower. Some borders should be given to miscellaneous plants and shrubs, but a summer garden should be free at the proper time of bedding out

exotics. My own plan is to fill beds on the lawn with bulbs in autumn, and these being past their beauty in May, the plants intended for summer are put in, and by the time they are ready to flower the bulbs can be removed; or, their foliage having withered, they may be raked over and allowed to remain till another season. By confining each bed to one kind of plant, a better effect is produced, and it is more easy to attend to the cultivation. However, the circumstances of gardens are very various, and if your beds are partly occupied with fixtures, you must exercise your taste, and introduce exotics here and there, so as to harmonise best with the whole, and produce the best effect.

In my opinion, at the head of the class of plants now under consideration, stands the Scarlet Geranium, or, more properly, Pelargonium. Nothing can exceed the beauty of this in the open air, and nothing yields its flowers more abundantly, or demands less attention. There are many varieties now grown which differ in height, intensity of colour, and character of foliage. By placing a strong plant of a robust, tall habit, in the centre of a small bed, surrounding it with a number of less stately growth, and forming the border of those of a dwarf development, a pyramidal bed is produced, the lustre and charming beauty of which are unsurpassed. Single plants may be introduced in vacant spaces, either trained upright to a stake, or, if of a dwarf kind, made to form a mass on the ground.

Next in durability and abundance of bloom come the shrubby yellow Calceolarias, contrasting so vividly with the scarlet Pelargoniums. These grow rapidly,

and should be planted about one foot apart every way, so as to cover the bed. The herbaceous kinds look well, but are more delicate than the shrubby varieties; the large flowers of the superior seedlings now grown are only fit for days continuously warm and still. Wind and rain soon rob them of their beauty. Fuchsias deserve commendation on every account. They are graceful in their mode of growth, profuse bloomers, and continue gay till the frosts of autumn set in. These are so various in their heights, and in their colours, that they admit of the most charming combinations. Fuchsias have also the recommendation of living through the winter in open ground, if properly protected. From a bed occupied with Hyacinths and Tulips, Fuchsias may protrude without interfering with them.

The variegated Pelargoniums look magnificent in a bed, if varieties are selected for the purpose. They should be carefully trained in pots, and stopped from flowering, until a good compact head is secured; they will then bloom beautifully in a warm summer. Cinerarias admit of tasteful arrangement, and make handsome beds. I presume it is not necessary to say anything of Verbenas and Petunias, as they are found everywhere. Small round or oval beds surrounded with an ornamental edging of basket-work, either of wood or wire, are attractive objects when overflowing with Verbenas or Petunias. Phloxes, Antirrhinums, Mesembryanthemums, &c., form beds of various and durable beauty. The Phlox Drummondi, mentioned before, is a great favourite with me, and it continues

in bloom as late as anything of a tender kind in the open air. I have mentioned the above because I know how easily and successfully they may be cultivated; what beauty they are capable of producing; and what satisfaction the amateur will derive from a garden supplied with them. They may be all cheaply purchased, as may be seen from the weekly advertisements in the gardening newspapers.

II. CARNATIONS AND PICOTEES.

As the season is at hand when these beautiful flowers are to receive the more especial care of the florist, a few observations on the best mode of culture may not be unacceptable. The remarks to be made will, however, be of a general character, adapted for the guidance of the novice, rather than the instruction of the experienced. Those who have grown Carnations for years, will have learnt for themselves the most successful modes of culture, and we shall aim rather to assist those who may be desirous of adding this general favourite to their collections.

The amateur should first decide whether he will grow Carnations and Picotees for exhibition, or be satisfied with the beauty and ornament they will confer on his garden. This advice is founded on the fact that only the very first-rate flowers will be likely to succeed if competition is attempted, while more established, and

cheaper varieties, will answer every purpose if the latter object is contemplated. There are few florists' flowers so precarious as these, and an expensive assortment in the hands of a tyro will probably fall a sacrifice to the various mischances awaiting them. Begin then with hardy kinds, and as your experience increases, venture on the more delicate. I say this from having known the disappointment and vexation of taking in hand first-rate productions of this class. I purchased a set some years ago, and bestowed on them all imaginable pains, following the directions of the best writers on this subject. But I did not succeed. Some never bloomed; others bloomed badly; a few bloomed well, but produced no *grass*, as the young shoots to be used as pipings or layers are technically termed. From this bad luck I became more cautious, and although now I should not fear attempting the most tender varieties, the ability has been secured by repeated failures. Nothing is easier than to give lists of show flowers, and to describe the general routine of cultivation; but I think the kinder proceeding is first to indicate the probabilities of success, that time and money may not be thrown away.

I believe there is a great deal of imposition sometimes practised by the sale of young Carnations imperfectly rooted, and which, consequently, never can make healthy plants. If the layers are taken off at an early period in the autumn, and judiciously potted in sale pots, the roots will shew themselves all round the pots in the spring. If this is not the case, I advise you on no account to buy such a plant, for it will not

succeed. The absence of plenty of root-fibres is indicative of some obstructed or unhealthy condition of the plant, which will not exhibit its consequences until warm weather arrives, when it will dry up and die, or at least lead on a miserably stunted existence. Carnations will look healthy, and deceive the grower during the whole winter, when there is scarcely any root at all, and therefore the rule I have laid down cannot be considered too strict. If you can get a nurseryman, or some experienced friend to point out the sorts which are most hardy and productive, and can purchase well-rooted layers, you have the best chance of success, and may proceed, with some hope, in your labours.

The next question is, shall the flowers be grown in pots or in the open ground? The first plan is generally adopted with first-rate, and often with common flowers; but I think the practice is of very questionable utility. The advantages offered by pot-culture are—the economising the soil, which is often very artificial in its character; the exclusion of wireworms, which can of course be effected more certainly in a pot than in a flower-bed; and the ease with which layering can be performed, and other manipulations in reference to the plants carried on. Now there are disadvantages which must be balanced against these. Pots are in constant need of watching lest they should become too dry, and yet, on the other hand, if often watered, the soil is reduced to an innutritive mass, requiring liquid manure to restore its properties; nor do the plants ever acquire the vigour in pots which they gain in the ground. As

to soil, any good loam will grow Carnations well, and a small bed may easily be made of any materials which it is thought desirable to use. Wire-worms may be carefully searched for; or what is best, never plant in soil which is pestered with them. To the novice I would recommend planting in beds in rows two yards apart, to allow of easy access; and the plants a foot from each other. The Carnation is very impatient of much wet, and a well-drained spot should therefore be chosen. For the same reason deep planting must be avoided. With these precautions, you may expect your efforts to be successful, and I hope if you are induced to make a trial this year, you will rejoice in the beauties you have succeeded in raising. If you prefer the pot system, let the pots be very large with good drainage. Oyster shells are excellent for this purpose.

When your plants begin to spindle up, let sticks be at once applied, and keep the shoots tied to them as the growth proceeds. Those who grow Carnations for the first time are amazed at the length of stick required by some of them. Never use one less than 4 ft. out of the ground, and I have known some kinds exceed that height. If you intend to exhibit, a multitude of rules must be observed, which must be learned from some brother of the craft. But whether you compete with others, or are contented with adorning your own garden, an awning must be provided when the flowers are in bloom, as their beauty is soon marred by sun and rain.

III. TREATMENT OF PLANTS INTENDED FOR BEDDING OUT.

During the months of April and May, the skies are often so propitious, that we cannot but believe the winter is quite departed. With sultry nights and brilliant days we banish every thought of frosts and bleak winds; all hands are set to work to turn out our Pelargoniums *et hoc genus omne*, and we flatter ourselves that we shall have a long and prosperous summer. But we soon find we have committed the folly of the birds who anticipated the pairing time; north and east winds return, and night frosts re-assert their iron rule, and a few hours blast the labours of a whole winter.

Having a crowded frame, and tempted by the balmy gales and soft showers which prevailed about the middle of April, and persuading myself that vegetation never would be so forward if cold weather had not quite retired, I was one year foolish enough to act in the manner I have just described. I turned out 40 or 50 plants into the places I had destined for them, and immediately repented of it. Sharp frosts nipped them, and although death was not the result, they were sadly robbed of their beauty, and I lost much time by the experiment. I hope I shall profit by this lesson, and act up to the resolution I now advise others to make—never to turn out tender, or even half-hardy plants, until the middle or end of May. Resist every temptation to break this resolve, and I am certain you will be saved much disappointment and loss.

But the important question arises—What is to be done with those plants in pots which are intended for ornamenting the beds in summer, but which grow too rapidly for their present confined quarters? This matter must now receive the immediate and careful attention of the gardener, since many productions may become permanently stunted by being left too long in small pots. Now, it should be remembered that vegetable growth may be retarded without inflicting any injury on plants subjected to the treatment. The pots should be removed from a sunny spot to the shade of a north wall, where they will continue *in statu quo* for many weeks. They should be defended from much rain, and receive protection enough to avert frost, and no more. By these means the growth of roots will be checked, and there will be a marked difference between plants so treated, and those subjected to warmth in a glazed frame. This retardation of growth will be of service many ways, and will result in the production of finer plants at a future period; but I mention it now only as a means of preventing those plants being pot-bound and injured, on which so much of the beauty of the season is to depend.

If your stock of plants is small, and you have plenty of frame room, you may repot them as it becomes necessary, and thus turn out the whole in a highly developed state at the end of May or beginning of June. Many things will do well in this way, but generally, greenhouse treatment is not favourable to plants which are afterwards to be turned into the borders. The tenderness they acquire by being kept under glass, or even

being covered up at night, exposes them to checks when planted in the open air. This would not be the case, indeed, if they were not turned out till the summer had become established; but too much time would thus be consumed in preparatory management. Another good plan is to cover over at night with a flower-pot, any plants which you are disposed or compelled to commit to their destined place. In all these questions an enlightened judgment must guide you, the object being to have your parterres gay with flowers for as long a time as possible.

IV. A FEW WORDS ON THE KITCHEN GARDEN.

This is a very important time of the year with those who grow their own fruit and vegetables, and upon a wise forethought now much of their future success will depend. The early sown crops will now be appearing, and must be guarded from birds and slugs. It is vexatious to find nothing where you expect Radishes, and to see your rows of Peas ploughed up by the beaks of the feathered race. Yet, without caution, both these events will occur. I find white thread or worsted stretched over the beds effectual for deterring these marauders, although I believe the remedy is not always sure. A vigilant watch should be kept up, and when it is found the birds have commenced their attacks, let some scarecrow be set up.

As Peas appear they should be covered with a slight hoeing, and by the time they emerge from this covering they will be too strong for the enemy. Against slugs it is not so easy to guard, as their existence is often not suspected till the damage is done. A warm day will be succeeded by the nocturnal rambles of thousands of these pests, and whole beds of seedlings will soon fall before them. As soon as it is found that any spot is infested, lay Cabbage leaves as traps, and they may be prevented from doing any very serious injury.

As so much depends on a proper succession of crops, the amateur should take a prospective view of his ground, and decide in a general way how it is to be occupied during the season. It is awkward to find there is no room for Celery trenches just at the time the plants require their final moving; or to have a piece of ground fit for Cabbages, &c., and to be destitute of plants to fill it. Seed beds need not be large, but they should always be ready. Let all the various productions likely to be wanted be sown now, and if some of them should not be required, it will be of little importance.

Broccoli is often an imperfectly developed crop, because the sowing is too long delayed. A whole year seems to be required for bringing the spring kinds of this vegetable to perfection. The seed should now be sown. It is an excellent plan to have a piece of ground sheltered by a wall from the north and east, appropriated as a seed bed. Divide it into small compartments, and thus one mode of deterring birds will do for the

whole. When the vegetable seeds come up very thickly, and it is not convenient to transplant them, they should be weeded out, leaving only as many as may be wanted for after use. They will in this way acquire a robust shrubby growth, instead of being drawn up and weakly.

Raspberry and Gooseberry and Currant bushes should be looked at early, that superfluous shoots may be removed in time. This is a branch of gardening sadly neglected, to the manifest detriment of the trees in the next year. It is generally considered sufficient to let these things grow as they please, and then in the autumn to prune and remove useless shoots. Now, if only as many canes and branches are allowed to grow as will be retained next season, it is evident that they will have a more robust growth than when smothered up with a useless forest of foliage. It is surprising that while wall fruit has so much attention in this respect, standards, and especially Currants and Gooseberries, should be entirely neglected.

It is hoped that amateurs will not neglect to try experiments in growing Potatoes, for there is reason to hope, that, after all, accidental circumstances produced the failure of the last few years. At all events try what can be done; for if you do not succeed, the loss will be inconsiderable.

V. TREATMENT OF WINDOW PLANTS DURING SUMMER MONTHS.

Although in-door gardening loses much of its interest in summer, when nature is so prodigal of her beauties in the open air, still the amateur will find great interest in adorning his windows with his choicest productions. Nothing can have a finer effect in a drawing-room or sitting-room than a flower bloomed well in a pot, and tastefully trained; and windows filled with healthy Pelargoniums, Fuchsias, &c., convey a sense of refreshing coolness to the apartment. To keep up a succession of flowering-plants requires some forethought, and many are discouraged by apparent difficulties. I hope, by a few plain rules, to assist those who garden on a small scale, and have no greenhouse, in the art of securing a succession of handsome flowers, so that the charm which a household flora confers may be their own.

Presuming that you have a frame, and that your stock of plants was repotted, according to former directions, you will now be in the midst of your prosperity, and making a display of your riches. The bulbs are all laid to rest for the season; the early Roses, &c., which succeeded the bulbs will have done flowering, and should be replaced by Pelargoniums, Fuchsias, and other plants, which have been before recommended. Let every pot be kept in the frame until the bloom is ready to expand, that the full benefit of light and heat may be secured, and then remove it to the window.

When there, it should be moderately watered. It is astonishing to the inexperienced how small a quantity of water will keep a plant in good health. I have some Pelargoniums in 60-sized pots in a window fully exposed to the sun, and I find watering once a day quite sufficient, and even then I take care that none stands in the saucers. But to do this it is requisite that the pots should be kept as much as possible from the solar rays, which may be accomplished by opening the window, so that the thick lower frame of the sash shall intercept the light, and so keep the pots cool. If pots are placed outside the window, which is often done with good effect, they may advantageously be put into empty ones of a larger size, by which a current of air will be secured all round them, and a lower temperature maintained. Any little contrivances of this description will be useful, for frequent watering has many evils; among others, the soil is rendered too compact, and the most valuable portions are quickly washed from it.

The most scrupulous cleanliness must be observed with window plants, or their health will soon suffer. All decaying leaves should be removed as they appear, and no flowers should be allowed to die upon the stalk. By removing flowers as soon as their beauty is impaired, neatness and beauty are consulted; but this is not all. By stopping the tendency to produce seed, more flowers will often be produced. Mignonette in pots soon becomes shabby if this rule is neglected; but by picking off every spike of flowers when it is elongated and bare, laterals will quickly reward your pains, and keep up an air of

healthfulness. It is scarcely necessary to prescribe an abundance of fresh air, as it is presumed few persons would in the summer sit with closed windows, unless the dust of a high road were playing its pranks near them.

Having pots in your frame for a succession, remove your plants from the house as soon as the bloom is over. Some sorts may be cut down, and with care will flower again. Perhaps the warmth of the season may bring too many forward at once; in that case, pinch out the bloom of some of them, and you will have the benefit later in the year. Scarlet Pelargoniums are very valuable in this kind of window gardening. I find small pots do best, producing least foliage and most flower. Fuchsias also amply repay the grower for window culture. By a little forethought and daily attention, the window, even without a balcony, may be made very attractive until frosts appear again, and our now dormant bulbs again demand and repay our care.

VI. WEEDS AND WEEDING.

"How does your garden get on?" is a question often followed by the reply, "Oh, I am sorry to say it is smothered with weeds!" a confession too often corroborated by actual inspection. A garden properly treated in reference to weeding is comparatively a rare sight, except in large establishments. We often see grounds well laid out, and not deficient in valuable plants, which

are, indeed, "smothered" with Sow-thistle, Groundsel, and Chickweed. This state of things often arises from the peculiar arrangements people make with their gardeners, who visit the place, perhaps, once or twice a week. The consequence is, that weeding is often postponed to other matters which are more pressing, and the noxious productions are allowed to grow rampant and run to seed. A second crop of weeds may thus often be seen springing up before their parents are dead, until the long-deferred opportunity being presented, a desperate onslaught is made on the enemies, and for a few weeks a more decent aspect is secured. If, in all cases where the labour of a gardener is not sufficient, enough supernumerary help were secured to prevent weeds getting ahead, the benefits would soon be manifest.

We should like to see it acknowledged as indispensable, a *conditio sine qua non* in gardening, that no weed should be allowed to exhibit a flower; for although this would not be all that neatness demands, the end would at length be attained, since without flowers there will be no seeds, and extermination must be the natural result. Let the amateur consider, first, how impossible it is to secure a pleasing appearance in the garden if weeds are allowed to grow, however small they may be. Compare the appearance of two beds, one quite clear and fresh raked, with another, sprinkled with weeds just displaying their cotyledons. However diminutive these may be, they mar the beauty of a parterre, and therefore should not be allowed to grow. Secondly, it should be borne in mind that rank weeds injure all growing crops,

by taking from the soil that which is intended to secure their perfect development. It is vain to apply manure, if weeds are allowed to steal it. Thirdly, weeds which come to maturity send their roots deeply, and are not to be eradicated without considerable labour. Try to pull up Thistles, for instance, and they will break off at the crown, only to furnish an abundant second crop in a few days; to be prevented doing further mischief, the root must be dug up, which, in a garden of any size, will be a work of time and labour. Fourthly, weeds are very prolific, and if allowed to bear seed, some years may transpire before the effects are obliterated. These four considerations ought to be forcible enough to induce every gardener to resolve that he will henceforth give no quarter to weeds. *Delenda est Carthago!*

As it is the *expense* which is often alleged as the grand impediment in the way of weed extermination, let the gardener compute the difference between a constant hoeing, &c., to prevent the growth of these thieves, and the hard tasked labour demanded to clear the ground of them when they are grown, and he will find that in a pecuniary point of view the advantage is on the side of cleanliness. There can be no doubt which is really the cheapest mode when the superiority of clean crops is considered. Ply the hoe then well. Rake your beds often, and you will reap great benefits. If in any case great weeds have grown up, they had better be cleared away by hand, for if allowed to fall on the soil, they often take root again, or shed their seeds before they can be raked away.

VII. SCARLET PELARGONIUMS.

I am inclined to say something special on Scarlet Pelargoniums, because they are highly useful in our summer gardens, are easy of cultivation, and must always please by the splendour of their numerous flowers. As show flowers they could scarcely be admitted, for they have too little variety, and besides, they produce less effect in pots on a small scale than in the open air. I have had opportunities of comparing several good gardens, and in nothing has dissimilitude been more manifest than in the presence or absence of these beautiful flowers. A garden plentifully supplied with them has an unspeakable charm, which no other production I know of can confer; indeed, I never remember seeing too many of these, but on the contrary have generally observed that more might be introduced with benefit. The first advantage which may be mentioned is the foliage, which has such a fine exotic character, and looks so fresh at the autumnal season, when so many productions have a russet hue. Next comes the permanency of the flowers, the trusses of which are often so large that a supply to fill up the places of those which have decayed is furnished for a considerable time. Further, they will resist frosts much longer than other tender plants, surviving those early attacks which often destroy the Dahlias. Lastly, they are as easy of propagation as anything can be, both by seeds and cuttings; they may also be preserved through the winter with a very small portion of care.

Large specimens produce a fine effect, and they may be secured by taking up the tallest plants in the autumn, potting them, and turning them out in the spring. I have some plants of Smith's Superb, which are four years old, with stems of an established woody character, and above a yard high. When these are surrounded by others of a smaller kind, as General Tom Thumb, or other dwarf varieties, so as to hide the stems of their older neighbours, the result is very pleasing. Whole beds may be filled with the dwarf kinds, and Mignonette growing among them will add the grace of an exquisite perfume to their own beauty. If a stock is kept in pots, they do admirably to fill up gaps, or to insert in places where earlier flowers have gone off. In fact, they are invaluable; and I would give a little advice as to the treatment of them.

Having procured as many cuttings as possible, pot them thickly in pans or pots, and place them in a frame, care being taken to guard against damp, which is very fatal to their succulent stems. If the cuttings are allowed to dry over before the wounded part is inserted in the soil, the effect will be more sure. It has been found that these Pelargoniums do well when potted as above, and kept in a room of a dwelling-house, near the light. Indeed, as gardeners say, "they will grow like Grass," and, in the winter, dryness is almost all they need to preserve them. In addition to the young plants made from cuttings, all the old roots may be taken up when the frosts come, and may be preserved by being cut down and potted; or they may be dried and hung up by the roots in an out-building, excluding damp and frost.

VIII. CATS.

According to the laws of association, this monosyllabic word will be suggestive of various and very contrasted ideas and emotions, according as the four footed animal of which it is the appellative shall be in favour or disgrace. I confess that recently a fine tortoise-shell specimen of the tribe had so managed to win my affections, that I had promised to have her stuffed, and put in a glass case after death; and had even taken down the name of an artist in Red Lion Street, Holborn, in whose window there was a stuffed cat, looking most sinistrously at a poor squirrel under her paw. Indeed, so far had foolish fondness carried me, that I began to think it better for pussy to die soon, and enjoy the destined honour, while her skin was so sleek, and her markings so well defined, than to wait till old age had stolen away a part of her beauty. But, "a change has come o'er the spirit of my dream," and what was so lately my hobby, is now my detestation, for a reason which all amateur gardeners will at once recognise.

I now wonder how I ever showed favour to any member of this hateful fraternity, fit only to tear each other's jackets in some uninhabited wilderness, and to wake the midnight echoes on mountain tops. Most certain do I feel that in Eden, that original and model of all gardens, a cat never dared to intrude its ominous whiskers, and that its present existence is to be reckoned among the miseries of the fall. As far as memory serves me, the Hebrew language has no name for the ill-omened brood,

and the presumption therefore is, that among the ancient Jews the brutes were unknown. But I was going to prove that my hatred is well founded, rational, and praiseworthy, on account of divers injuries received, which I now allude to, to put my brother amateurs on their guard. In the early spring a few years back, I had a frame under a sunny wall filled with plants and seedlings in preparation for bedding out, and among these was a pan of some favourite exotics just putting forth their first leaves. Going to look at these, one fine morning I found a cat curled up in this pan, like a hen in a nest, and completely filling it. It was vexatious enough, you will allow, to have flowers hatched or rather addled in this fashion, and in order to punish grimalkin I shut down the frame, and went to look for a stick; but the cat was too sharp for me, and in a moment she dashed through the glass, breaking no fewer than six panes in her exit. At another time some cats got into the house by some broken window in the basement, and kicked up a most awful din in a sitting-room, the door of which had been left open, and as before related, committed havoc among the window plants. If my hatred was not well founded, whenever did that passion become a man?

However, as I said before, being placable, I had forgiven these old offences, and taken a cat into favour; when all former bitter remembrances were revived by a recent outrage, worse than those already recorded. A season of fine weather had brought forward a bed of bulbs, Hyacinths, Tulips, &c., and I trimmed it up, raked it, and made it as soft and pulverised as it could

be, even in summer. That night I heard sounds inauspicious, far more so than the raven's croak or the hooting of the owl, and knew well what awaited me in the morning. But my worst fears were more than realized. It is a well known historical fact that ancient wrestlers strove together in sand, or on a place strewed with it, and it appears that cats have a predilection for that which is sandy and pulverised in their noisy conflicts. However that may be accounted for, so it is, and my beautiful bed was rolled upon, raked up, and disfigured in all directions. I have now given a plenipotentiary power to all persons on the premises, to lay wait for, stone, execrate, grin ferociously at, imprison, or kill all and several the cats (white, black, tortoiseshell, or tabby), which henceforth may be found on the grounds. Amateurs take care. Let the experience of an unfortunate man teach you wisdom, and may you profit by my errors. Watch your frames, close your sitting-room doors at night, and place briars over your choice beds.

IX. TREATMENT OF PLANTS IN POTS.

The following remarks are not intended for the owners of greenhouses, unless they are on a very small scale. It is presumed that when a man builds a conservatory, he either knows how to manage it himself, or has a gardener with the requisite qualifications. I say this is presumed, for that all greenhouses are properly managed, it would be ridiculous to affirm. These horticultural

ing your collection, as far as infested by it, in a frame, and burning about half an ounce of tobacco among them. The tobacco may be put into a flower-pot at the top of a few live coals; this pot to be placed in another rather smaller than itself, to secure a current of air through the hole in the bottom. When you are sure that the mass is ignited, and will gradually smoulder away, close the frame and cover it with mats or old carpets. Let it remain close until the next day, when the plants should have a good syringing. In addition to this wholesale slaughter of your enemies, do not neglect little skirmishes against them with your finger and thumb, whenever you find them plucking up courage and attacking your plants. Remember that the aphis multiplies prodigiously, and that every one you kill, when looking at your flowers, or in any other incidental way, prevents myriads from coming into being. If you are very nice and do not like to soil your fingers by crushing these insects, be sentimental enough to believe that their blood is only the sap of the leaves on which they feed, and that to destroy them is only like pinching and breaking a flower stalk.

Pelargoniums must be cut down when the flowering is over, and repotted when the old wood has shot out a little; the cuttings, if wanted, must be struck, to produce young plants for next year. In the warm season, nothing should be kept in-doors, unless in bloom, and required there for ornament. Most greenhouse plants do best out of doors in the summer; their woody fibre is rendered compact by the sun and air, and provision is thus made for abundant flowering another year. Roses, and other

structures are often mere appendages of riches or fashion, and, not drawing to themselves the affections of their possessors, are horribly neglected. I recently saw a greenhouse tucked in a shady corner of a very large garden, where there was good choice of situation; its plants were all lanky and infested with aphides; its shelves and pots were green, not from paint, but from damp; and, wishing to grow Grapes, my friend had dug a hole in the Grass-plot in front, tucked in a Vine, and a spindley branch about as thick as a Carnation stalk was wending its melancholy way towards the roof! I never like to see birds in cages, but imprisoned plants are a sadder spectacle, mourning the absence of air and sunlight. If any reader calls such a floral den as this his own, I beseech him forthwith to turn out every pot; to set a man to wash them free from mouldiness; to scrub the stands and shelves; to pull up all such misnamed Vines, and, if possible, to remove the house to a better situation. Even then, unless more time and care are to be given to the greenhouse in future, little good will ultimately be effected by these lavations. Consider well whether you are willing to grapple with the pleasing difficulties of growing exotics in-doors; and if not, pull down the house, and make a present of it to some poorer amateur.

To return from this digression. The plants in pots, belonging to those who garden on a small scale, and require only a few to grace their windows and sitting-rooms, demand much attention just now, when drought and heat conspire to injure them. The green fly should be resolutely kept down; and this is best done by plac-

ing your collection, as far as infested by it, in a frame, and burning about half an ounce of tobacco among them. The tobacco may be put into a flower-pot at the top of a few live coals; this pot to be placed in another rather smaller than itself, to secure a current of air through the hole in the bottom. When you are sure that the mass is ignited, and will gradually smoulder away, close the frame and cover it with mats or old carpets. Let it remain close until the next day, when the plants should have a good syringing. In addition to this wholesale slaughter of your enemies, do not neglect little skirmishes against them with your finger and thumb, whenever you find them plucking up courage and attacking your plants. Remember that the aphis multiplies prodigiously, and that every one you kill, when looking at your flowers, or in any other incidental way, prevents myriads from coming into being. If you are very nice and do not like to soil your fingers by crushing these insects, be sentimental enough to believe that their blood is only the sap of the leaves on which they feed, and that to destroy them is only like pinching and breaking a flower stalk.

Pelargoniums must be cut down when the flowering is over, and repotted when the old wood has shot out a little; the cuttings, if wanted, must be struck, to produce young plants for next year. In the warm season, nothing should be kept in-doors, unless in bloom, and required there for ornament. Most greenhouse plants do best out of doors in the summer; their woody fibre is rendered compact by the sun and air, and provision is thus made for abundant flowering another year. Roses, and other

plants expected to flower again, should be plunged up to the rim of the pot in any light soil. I disperse mine about the garden. They require no watering when thus treated, and the equal temperature and moisture of the roots cause them to grow more rapidly, and keep them in good health. When about to bloom, they may be removed to the window or sitting-room. Bulbs, of course, should be quite at rest when the foliage is decayed; a few weeks' entire dryness is generally beneficial to them. Verbenas, and other trailing plants in pots, should be carefully trained, according to the situation they are destined to occupy.

X. A FEW REMARKS ON ROSES.

Several matters of importance in the culture of Roses require to be attended to, which are yet too simple to demand any lengthened observations. These we shall bring together in the present paper, and then dismiss this flower for the present; hoping for all gardeners that their labours, wisely conducted, may be rewarded by abundance of bloom, and that the season may be propitious.

Where there are many Roses in a garden, a late bloom should be secured by pruning some of them late; that is, after the first leaves are developed. When spring frosts occur, and the early flower blossoms are nipped, such trees will do admirably for this experiment. Cut them in, so that new buds may be brought into

activity, and these will flower a month after those which are not so treated. Moving them at this time will have the same effect, although it is rather late for this operation. It may be done if necessary; and the trees thus transplanted should be cut close in, and well watered in dry weather. Contrivances to secure a late bloom are less necessary, now that autumnal Roses are so numerous; but at the same time the amateur may wish to prolong the flowering of some kinds which have not this late habit. We have found that old favourite the common Provence Rose do well when moved late.

Attention should be given to every Rose tree before it is in full leaf, to ascertain the position its branches are likely to take when they are laden with the full foliage and flowers of summer. We have often been vexed at the tendency to bow down to the ground, of some of our best bushes, which we thought were strong enough to retain an erect position; and when stakes are applied at that late period of growth, the tree can seldom be made to assume a natural appearance. The best plan is, to go round the garden and stake up all trees which, judging from past observation, are not sufficiently supported. Imagine them as they will be in July, when "washed in a shower," and when "the plentiful moisture" will add so much to their weight, and act accordingly. Let the staking and tying up be performed with taste, so that the bush when in bloom shall have a unique and compact appearance.

Insects should be sought after in the egg state, or, at all events, when the caterpillar first appears. The grubs which bury themselves so adroitly in the folds of

a Rose-leaf do not come by chance, but proceed from the egg to gradual maturity; if therefore their habits are studied they may be caught in time, before they have made many meals on Rose-buds. Children might be of great use in searching out these pests, when taught to distinguish between those which are injurious and those of an ichneumon or parasite character.

The shoots of briars must be arranged for budding, only two or three being left in the position required for the head of the future tree. Tree Roses lately formed must be guarded by stakes reaching up to the budded part, which must be tied to them. Without this precaution, some high wind may carry away the whole head, as much to the surprise and annoyance of the proprietor, as were felt by John Gilpin when he lost his hat and wig.

XI. THE HARMONY OF NATURE.

When April arrives, it is time for the lover of horticulture to open his spirit, as well as his eyes, to take in all the loveliness of Nature, and to learn the sweet and cheering lessons which are being uttered on every side —lessons adapted to the admirer of artistic skill and beauty, to the poetic and sentimental temperament, to the troubled and distrustful soul, and to the contemplative of every class who are disposed to

> "Find tongues in trees, books in the running brooks,
> Sermons in stones, and good in everything."

The amateur should never forget that a florist is not necessarily a lover of nature, for it is too frequently the case that a devotee will worship an Auricula or a Tulip, and yet see no beauty in a hedge-row. The kind of feeling which is generated by the competition of flower shows, and by too rigid an adherence to conventional principles of taste in popular floral productions, is often adverse to those simple tastes which are necessary to form a general lover of natural beauty. Let us then go out of our greenhouses to look on the vast conservatory whose spanned roof is the sky; let us lift up our heads, too long bent down to the denizens of flower-pots, to survey and admire "the precious things of heaven, the dew, and the deep that croucheth beneath; the precious fruits brought forth by the sun, and the precious things put forth by the moon; the chief things of the ancient mountains, and the precious things of the lasting hills; and the precious things of the earth and the fulness thereof." Let us turn our thoughts from the pet songster, in his cage of golden wires, to the vast aviary around us, in which "from morn to dewy eve" ten thousand feathered warblers thrill their notes of love.

Not that winter has been wanting in charms; far from it, for there is no day however frosty, dull, or sleety, which has not its characteristic beauties. But spring is new, and young, and tender, awakening the finest feelings in the breast of all unsophisticated mortals. We are anxious that all who labour at the spade, or tend from day to day their favourite plants, should feel that universal Nature is ready to harmonise with their pursuits, and that their garden is but a part of one beauteous whole.

May.

"Then came fair May, the fayrest mayd on ground,
Deckt all with dainties of her season's pryde,
And throwing flowres out of her lap around;
Upon two brethren's shoulders she did ride,
The twinnes of Leda; which on either side
Supported her like to their soveraine queene;
Lo! how all creatures laught when her they spide,
And leapt and daunc't as they had ravisht beene
And Cupid's self about her fluttered all in greene."

Spenser.

The Calendar.

Flower Garden.—The beds which have been prepared for exotics, such as Pelargoniums, Calceolarias, Verbenas, &c., should all be filled by the middle or close of the month, regard being had to the forwardness of the season. Dahlias must be planted, annuals removed from the seed-bed to the places they are to occupy, and more sown for a succession. As herbaceous plants advance, let them be neatly tied up, so that they may not be injured by winds; the same remark applies also to Pinks and Carnations as they begin to spindle. Many things may now be propagated, such as Wall-flowers, which readily form roots in shady situations. Lose no opportunity of keeping up neatness, and keeping down weeds. The green-fly will appear abundantly, and the

earlier its increase is checked the better, as it multiplies with a rapidity which would be fabulous if not proved by experiment.

Kitchen Garden.—Continue to sow for succession crops. Make up seed-beds for Winter Greens, Broccoli, and Celery, although for early trenches of the latter, the seed should be raised in a hot-bed. Hoe frequently between and around Cabbages, Peas, and all advancing vegetables; the more the soil is loosened, the finer the produce will be. When Strawberry flowers are setting, let water be plentifully supplied if the weather is dry. Water frequently whatever has been transplanted. Attend to Asparagus beds, as directed elsewhere.

I. ON "BEDDING OUT" TENDER FLOWERING PLANTS.

The technical phrase "bedding out" is not the most elegant which could be desired, but like many other homely things it must be tolerated for want of a better. It has the advantage of expressing the idea it is intended to convey, which many more *recherché* phrases fail to do. But whatever may be thought of the term, the operation itself is a most important one, and in modern gardening occupies a very conspicuous place. An old-fashioned garden generally contained in it both summer and winter all that it was capable of holding, and an occasional raking of the beds, and the sowing of annual flower-seeds was all that the rolling seasons demanded.

But *tempora mutantur* in these matters, and we must change with the times, and if we wish to have elegant gardens it behoves us to know what it is to be "bedded out," and how it is to be done.

It would be very unseasonable in the month of May to give directions to the amateur respecting the preparation of his stock of exotics intended to decorate his beds in the summer months. If this work is not now a *fait accompli*, it cannot be attempted, and the nurseryman must fill the void for the present season. The care and labour requisite to provide a supply of blooming plants for a large garden is immense, and a more interesting sight can scarcely be furnished to the looker-on than is presented by the store department of a large establishment. The writer visited lately the garden of Colonel Sowerby, at Putteridgebury, Herts, and was amazed and delighted at the provident skill there displayed in the preparations for "bedding out." The garden is very extensive, occupying more acres than I dare mention from memory, and the object of the proprietor is to make it a mass of floral beauty in the summer and autumn months. To effect this, an extensive system of striking and bringing to maturity such plants as will bloom in the open air is put in requisition, and the highest credit is due to Mr. Fish, the head gardener, for the manner in which this is accomplished. Every spare corner in the working departments of the garden is filled with frames. Some contain tens of thousands of cuttings advancing by the aid of artificial heat, while others of a more slight character hold myriads more of young plants, hardened off, and awaiting genial weather

to be put into the beds and borders. Roses, Pelargoniums, Salvias, Fuchsias, Verbenas, Petunias, Calceolarias, *et hoc genus omne*, crowd the pits and frames in every direction, all in a state of robust health, and giving the promise of luxuriance of fragrance and beauty when the season will permit.

"But," says the amateur with a sigh, "what is all this to me?" I answer, what is done on a large scale you may effect on a smaller one, and you must now hold yourself in readiness to put out in all vacant spaces productions of the kind above mentioned. If you have followed former directions, your beds of bulbs will now be in bloom, and hastening to their decay, and into them your reserved stock must be introduced during the month. Where you have many small beds it is decidedly best to have plants of one kind in each, and these, if empty, should be prepared without delay, by being properly drained and furnished with light porous soil. This must not be too rich, if abundant bloom and a dwarfish growth is desired; much manure is out of place in a flower garden, tending to produce rank vegetation, but few flowers.

But where are your plants? I hope your frames are full, and if so, accustom them gradually to a cool atmosphere, and harden them for their destined places. See that none get root-bound in the pots, for this may stunt their after-growth. You may yet strike cuttings for a late bloom, if you have plants which will bear thinning. Verbenas and similar plants must be stopped, to induce a shrubby and compact habit.

But if you are not the happy possessor of well-stocked

frames, and are yet anxious to have a blooming exotic garden this year, you must apply to a respectable nurseryman, and he will supply you with the requisite plants. Buy in time, and be sure to get everything well rooted. Many things might be said respecting the arrangements of size and colours in the beds, but the taste of individuals must decide the matter.

II. PLANTING THE BEDS FOR SUMMER.

Having decided of what your stock of summer flowers shall consist, and where you will place them, a few directions on the subject of planting may be useful. If you have your plants *de novo* from a nursery, they should by all means be in pots; either purchased so, or potted by yourself. A great number of handsome flowers may be procured for a small sum, unpotted; and if you put one of each kind in a small pot, and shade them for a day or two in a cold frame, they will soon be established. You will thus have your plants ready for turning out when the season suits, and the beds are ready, without the risk of losing them by drought and sunshine—the great enemies of plants which are removed to their destinations without the process of potting.

The soil for flowers should not be made rich with exciting manures, which have the effect of producing a luxuriant foliage at the expense of the bloom. Rotten leaves do better than anything else to mix with the soil, which need not be very deep. Having some very large

Scarlet Pelargoniums, I intend this season to bury the pots in the beds, instead of turning the plants out, expecting in this way to secure more flowers. Good drainage is necessary, and a few crocks may be advantageously put into each hole under the plants. Calculate well your distances, for nothing is more common than to injure future effect by planting too close. If the object is to cover a bed with one kind of flower, the distance is no object; but for single plants allowance should be made, so that, when full-grown, a little space may exist between each. Training should begin at once, by pegging down the trailers, and putting neat sticks to those requiring support. Remember that it is not always good policy to allow a plant to bloom when and where it pleases. A strong shoot showing bloom may often be removed with advantage; other shoots will thus be encouraged. Occasional stopping, by pinching off the ends of the shoots, will induce a more compact growth and regular bloom.

The time for placing the plants in the open air, as before mentioned, should be carefully studied. If your garden is small, and you do not mind trouble, you may fill your beds now, provided you give protection at night by covering with flower-pots or otherwise. You will in this way get your beds in summer order earlier; but if you cannot do this, be patient. Take the advice of a sufferer, and stop till the last week of May. It is most provoking to find some clear sunny morning your tender pets blackened, and even the more hardy ones turned to a dingy brown by a frost. With a little management you can carry on the growth of

your stock in pots, so that you will not after all be a loser by waiting. In this case you must retard some and forward others. See that none get pot-bound, and that flagging is prevented by a proper supply of water. A frame full of plants demands much watching in this respect, or some bright warm day will deprive small pots of their moisture, and injure them very much.

Where your beds are now occupied by Tulips and other bulbs, your plan of operations must vary according to the treatment you propose to give the bulbs. If you intend to allow them to remain in the ground, you can insert your summer plants among the foliage, removing the latter as it decays. But if you wish to remove the bulbs, it will not do to hurry them, for on the duration of their leaves their health and strength depends. By taking them up with the soil adhering to them, and putting them into the ground again in some other spot, the leaves will still do their duty, and the beds they occupied may receive their summer ornaments.

III. ASPARAGUS.

Having recently visited several gardens belonging to my friends, I have been surprised at the bad state of the Asparagus beds in almost all cases. A complaint is common that the crop is small and deficient, that the beds appear to be worn out, and but very few of my acquaintance find an adequate quantity of this very delicious vegetable as the result of their expense and

labour. On enquiring into the causes of this failure, I have not met in any one case with a rational answer. The parties seem quite ignorant of the commonest principles of vegetable growth, and of the conditions on which a good crop of Asparagus depends; and although the failures alluded to are attributable to the most obvious causes, neither masters nor men have discovered them. This is vexing, for modern publications have given very explicit directions for Asparagus growing. However, the work must be done again, and I proceed to detail the treatment, which, if followed, will enable the amateur to have Asparagus to his lamb chops to his heart's content.

If a well-made bed is not in your possession, this is not the time to make one. Presuming you have one, it will now, in high situations, be yielding its produce; for in warm and sheltered quarters, I believe, cutting is over. The grand rule to be observed is, do not cut too much. You probably are aware of a plan to exterminate weeds, by constantly cutting off the foliage, when the root is not easily accessible. Try this with the Nettle or the Dandelion, removing their shoots as they appear, and you will find the produce becomes gradually more feeble, until it disappears altogether. Why does this constant deprivation of the foliage thus kill the root? Because the root is as dependent on the leaves as they are upon the root, receiving from them the elaborated sap which they form by means of solar light and air, and convey downwards for future purposes. When, therefore, leaves are not allowed to be developed, the root is weakened, and if the process is continued long

enough, it will inevitably die. Now there is no difference between the Nettle and Asparagus in the essential arrangements of their physiology. The shoot of the latter is the stem, destined to develop foliage, and if cut off, Nature makes another effort and produces a duplicate to replace that which is removed. If a bed of Asparagus were left to itself, a few strong stems would be produced, which are multiplied tenfold by cutting, each succession being weaker than that which preceded it. Every cutting therefore is injurious, but the damage is repaired to some extent by a high artificial cultivation, and within certain bounds the shoots may be cut off without materially deteriorating the plants. Knowing when to stop is therefore the grand secret in growing Asparagus, for the less the roots are stimulated by the effort of reproduction, the finer will be the produce next year. In order, therefore, to have sufficient for a family, the beds should be so extensive as to allow of enough being gathered without unduly weakening the plants. In large gardens I would suggest a succession of beds, one set cut now being allowed an uninterrupted growth next year; in this way Asparagus could not degenerate.

When cutting is over, the growth of foliage commences, and every aid should be given to make that as fine as possible. I lately saw an Asparagus bed covered in every vacant space with rampant Lettuces, abstracting from the soil that nutriment which its exhausted owner so much needed. Every weed should be kept down, and, as the growth proceeds, liquid manure should be applied. The properties of salt in relation to Asparagus ought to be well understood by this time. Before

rain, the beds may be strewn over with salt, so as just to cover the ground; this repeated two or three times while the stems are growing will be productive of great good. Having thus carefully tended the growing plant, giving it all the benefits of sun, air, and manure, it will gratefully repay you. Summer and autumn will restore the ravages of spring, and sufficient nutriment, or rather of organisable matter, will be stored up in the roots to push forth in fine Asparagus shoots another year. Moderation in cutting and skill in growing the stems and foliage are thus the two grand conditions to be observed.

I may mention, in conclusion, that this year I adopted the plan I have seen recommended, of throwing the earth from the alleys of the beds on to the surface, to the depth of three inches more than in ordinary years. I confess the Asparagus never was finer, and probably I am indebted to the advice thus followed for a very abundant crop in a dry season.

IV. THE GREEN FLY.

If slugs and snails are the terror of gardeners in reference to their culinary crops and other productions near the surface of the ground, the numerous tribes of the aphis are equally obnoxious to the wellbeing of his trees and shrubs. They also thrive with provoking fecundity in frames and greenhouses. These minute creatures do injury in various ways. They do not eat up the plant on which they dwell, but they

constitute a sad incubus on its powers of life, both by their own pressure and by the gummy excrement they so plentifully discharge. Gardens are so generally infested by these insects, and the damage they do is so well known, that any contribution to the modes of counteracting their injurious influence must be acceptable.

It is well known that tobacco-smoke, when properly applied, effectually clears the plants in a frame or greenhouse from the aphis, but the same agent, when used in open air, is almost useless; for although a puff of smoke will dislodge the enemy, it does not kill him; he is only intoxicated for a time, and will speedily return to his predatory attacks. Having myself a choice collection of Roses, scattered rather plentifully over about an acre of garden-ground, and all much disfigured with greenfly, I once read with interest the following advice:—"Aphides are killed by a weak solution of smelling-salts in water, or by gas-water diluted with six times its bulk of water." As the extent of the evil in my garden made it important for some remedy to be applied *instanter*, I resolved to act on this recommendation. I could not use the smelling-salts, because no proportions were stated, and I therefore commenced operations with the gas-water, of which I had a constant supply from a neighbouring gas-house. Having diluted it as directed, I plentifully syringed some climbing Roses trained against the house; but to my vexation the insects were unmoved either by the smell or the taste of the dose. What followed I relate as a warning. If the aphis was unaffected by the gas-water, other things were not. The stone-colour paint of the windows was turned almost black, and the green of the verandah was horribly meta-

morphosed. This experiment, therefore, entailed on me much trouble, besides failing in its object. This circumstance illustrates the necessity of directions being more minute, for I cannot doubt the writer of the above had found gas-water effectual, although from some ignorance of the manipulation, I did not.

Despairing of clearing my trees by any solutions or decoctions, I resolved to have recourse to the labour of the hands, and recklessly to break the bones of those I could not poison. I went over the bushes, in conjunction with others equally zealous with myself, and drew my fingers up the shoots infested, thus slaying thousands in a minute. In the same way I pressed to death all I found on the Rose-buds. The operation is very disagreeable, but it is more effectual than any other I know. As the juices of the insects thus destroyed form a sort of gum on the branches, they must be well syringed with water as you proceed. By this mode I got the enemy under, although he was far from being quite destroyed. I have since thought of another method, which may be preferable, though it will require two persons to execute it. As the aphis begins to move when the branch is disturbed, I think the shoot which is covered with them should be held over a basin of water, and be then gently brushed, so that the insects may fall into the basin. These modes of procedure may appear very irksome to some, but it is to be understood that a well-regulated garden is only made so by tiresome processes. But *labor vincit omnia*, and an enthusiastic amateur will rather labour all night than allow his plans and hopes to be frustrated. An effectual mode of getting rid of the aphis in an easy way is still a desideratum.

V. STRAWBERRIES.

This is not the season for making plantations of this favourite fruit, and as directions given now may probably be forgotten at the time they are wanted, we shall reserve them for a more convenient period. We will presume that your beds have been properly made, and that now you have strong plants profusely covered with bloom; each plant maintaining a *noli-me-tangere* distance from its neighbour, and not practising that ridiculous and useless hug of fraternity so common among ill-regulated Strawberries. Such a well-conducted bed is now a beautiful sight in itself, and associated with pleasant expectances. What had better be done with it, in order to secure a large amount of fruit, and keep the bed in good condition?

It is common to deluge Strawberries with water when a few days of drought occur, at the time they are in bloom; for the purpose, it is said, of setting the fruit. Now this dictum, like axiomatic statements in all professions, requires to be received with limitations and cautions, or its practice will do more harm than good. The question to be asked is, Is the soil in so dry a state as to require water? for it need scarcely be said, that moisture is not wanted by the foliage or the bloom, but only by the root. Well-prepared beds will seldom require watering, and whether they do or not is discoverable by actual inspection. If the soil is moist a little beneath the surface, and the plants look flourishing, water will do no good; but, on the contrary, it may prove injurious by striking off, instead of setting the

fruit. It is customary in gardens where there is Grass, to place the mowings on the soil of the Strawberry beds, to preserve the fruit clean in heavy rains, which otherwise will often scatter it over with mould. Now if this mulching system is begun early, it will check evaporation in hot weather, and render watering superfluous.

As soon as the fruit begins to set, runners are produced, and it is recommended to cut them off as they appear, for the purpose of getting finer fruit, and strengthening the parent plant. This practice has the approval of so many first-rate horticulturists, that it must be safe to follow it ourselves, although it should be remembered that other great names have questioned its utility, among others Mr. Knight of Downton Castle. Amateurs having time to make observations should decide this doubt by actual experiment, and now is the time to commence operations. Take six plants in a row and carefully cut off all runners; let six more, as similar as possible, be left to nature. Then the state of the fruit and the plants will enable you to come to a decision for yourselves. I mention six plants for the sake of example merely, as it is evident the experiment will be more satisfactory the greater the number of roots operated upon. Having thought much on the subject myself, I am inclined to doubt the benefit accruing from the excision of runners, for the following reason:—As soon as one crop is removed, another follows, and this continues through the whole period of growth. If the removal of a runner was a final process, and no successor was produced, then the bearing of the operation on the fruit and the plant would not be doubtful; as when

Peaches are removed from a tree, no others being formed to supply their places, the juices which would have matured them go to those remaining. But if a fresh Peach were to take the place of the one plucked off, would any one practise the system of thinning? Here again direct experiment is wanted, and may be carried on in the following way: Let the runners allowed to grow on one plant be weighed a month hence; and in the meantime, let an account be kept of the weight of all those removed from another similar plant during the same period. The balance struck between these two accounts will tell more truth than theory can do.

As a new bed of Strawberries should be made every year, so that a fresh healthy stock may be always in possession, as many runners should be pegged down as you require, and when rooted, the young plants must be removed to their final destination, or to a nursery bed, to be planted out in the autumn. This is all we can advise respecting the Strawberry at the present time, unless we add a word of caution in reference to gathering the fruit. The amateur should either do this himself, or trust the task to an experienced person, if he wishes to have the full benefit of his labour. It is really atrocious to pluck away at a truss of fruit as eager visitors will sometimes do; gaining one, and often destroying a dozen unripe ones by the same ruthless attack. This may be of no importance in an old-fashioned garden where Strawberry beds have little attention; but when they are highly cultivated, it is vexatious to have a crop served as the corn is in a field having a footpath through it.

VI. GARDENING AN INTELLECTUAL OCCUPATION.

Having now reached the season when we are about to reap the rich reward of our labours, a few reflections may be allowed before we enter on the pleasures of the summer months. There is no pursuit to which man is more evidently led by the hand of his Creator, than the cultivation of the ground. Our necessities render the spade and the plough of the first importance to every community, and a high or a low state of husbandry will always be the distinctive mark of a flourishing or a declining people. In an occupation whose principal capital is industry, and whose object is the supply of our natural wants, the greater number of human beings must always be engaged. With the variations of fashion, and the mutations of ages, other pursuits, once sedulously followed, may become obsolete; but imagination cannot conceive a state of things in which the benignant stores of mother earth will not be sought after.

The cultivation of the ground, in all its departments, manifests the high honour which is attached to human wisdom and skill by the great Lawgiver of the universe. Nature, wild and untended, will produce luxuriantly the indigenous fruits of the soil, but demands forethought and labour from her dependents, before she yields to them her most valuable riches. By observation, man has improved upon the past, and better methods of cultivation are constantly discovered. Now, in this process of induction, or the Baconian method, as it is called in

philosophy, the amateur gardener has employed efforts which have often been crowned with eminent success. Those who till hundreds of acres as the means of subsistence have seldom the courage to perform experiments on a large scale; but the owner of a small garden can do so with pleasure unmingled with the fear of loss. Agriculture has thus been indebted to the lovers of gardening for many discoveries, by which the wealth of nations has been increased; and every amateur, however limited be his domain, may hope to add to the mass of knowledge. If, by the application of manure in some novel manner, or by experiments in hybridising or crossing, a vegetable may be made more productive, the application of this principle may result in a grand national benefit. I have a great respect for working gardeners of all grades, for this reason, that they are the silent and modest precursors of those great changes by which the vegetable property of a country acquires an enhanced value. Whether, therefore, you are delighting in an exclusive garden adjoining a country residence, or looking proudly on the beauties of a small suburban retreat, I thus remind you of a very important argument to be employed in the defence of your pursuits.

But I turn with pleasure from the objects contemplated by the spade and the plough to flowers, those luxuries of nature, given to reward man for his obedience to the law—"In the sweat of thy brow thou shalt eat bread." These emblems of purity and innocence are like the bright eyes which animated the knights of the tournament, calling forth their exertions, and rewarding their conquests. The matchless charms of

flowers force the attention of the most tasteless of mortals, and win the hearts of the susceptible and refined. A child once said that the stars were little holes pricked in the firmament to let heaven's glory through; a truthful idea though linked to a physical error. Apply the same mode of reasoning to flowers, and what can they be but emanations of the beauty and happiness which reside in the mind of an infinite being? Their utility is less manifest than their subserviency to the wants of our intellectual nature, since they appeal almost exclusively to what is refined and sentimental and poetic in our constitution. Seed is produced without the accompaniment of a splendid corolla, (with its wondrous sanctuary of stamens and pistils), as in the case of all kinds of corn, so that utility is rather associated with that which is plain and unattractive. But the most glorious structures of the floral world belong to plants which, in reference to man's bodily wants, may be called useless. Trade would go on, and fortunes be made, if the world did not possess a Carnation, a Tulip, or a Rose; and yet they are here, winning our attention, and rivetting the emotions of our hearts. Why are they here? Doubtless to recall us from pursuits carried on in reference to our lower nature, and to lead us to that which is gentle and good. The amateur gardener is thus evidently a respectful observer of the will of heaven, when he receives these gifts with thankfulness, and bestows on them a portion of his intellectual worship. To think lightly of floriculture is almost to disparage the wisdom of our maker, who calls the attention of the child and the man by enamelling the earth with the rich colours

and lovely forms of these universal favourites. This is a second and convincing argument which you may use in refuting detractors, and justifying yourself. You may not succeed with the former, for some men are destitute of the power of appreciating such reasonings as I have endeavoured to unfold. But be contented if you are able to satisfy yourself that in loving your garden you are acting right. Hear what has been written of wild flowers, and be sure that such sentiments are still more appropriate to those who have had something to do in the production of the beauty they admire.

"Oh! chide not at the simple theme that wakes the minstrel's lay,
Earth were less bright without the flowers that blossom by the way:
He at whose word the universe her ancient might did yield,
Hath taught proud man a lesson from the lilies of the field.
I thank thee, God! for every boon thy hand in mercy showers,
And oh, not least among thy gifts, the beautiful wild flowers!"

VII. THE GARDENER'S ENJOYMENT OF SPRING.

The humblest tiller of the ground, whether engaged in the service of the garden or the field, is allowed the privilege of occasionally leaning on the spade or the plough to inhale the sweet breath of spring, delight the eye with the profusion of newly-developed beauties, and catch more distinctly the melody of the birds. If it is wrong to muzzle the ox that treadeth out the corn, it must be equally blameable to deny the human son of

toil the pleasure of an occasional meditation. The Lilies of the field and the fowls of heaven are pictures made for all, that by glancing at them the mind may be instructed, and necessary toil borne with patience.

The pursuits of the amateur gardener would be fruitless indeed if he were destitute of a delight thus conferred on all who gain their bread by the sweat of their brow; and after giving the technical details of floricultural work for several months, we claim the privilege of unbending our back, leaning on the rake, and rejoicing in the beauty of a scene to whose charms we have contributed. We would not make one garden the horizon of our landscape, but would look out on the grand scenery of universal nature, now putting on its garment of varied green, enamelled with white and rose-coloured and purple jewels. Oh, what a queen is nature, and how silken are the bonds of her rule! We have heard of the costly and dazzling magnificence of a regal drawing-room; but what is this to the levee of mother earth? Such a drawing-room nature is now holding, with rainbow glories above her head, a thousand subject blossoms all around her, and a verdant and richly jewelled carpet beneath her feet.

The poet Thomson revels in this season of the year, and happy will those of my readers be who can sympathise with the spirit of his charming descriptions. It is sad indeed when the inhabitants of a beautiful world have no perception of its charms, and can walk in the midst of beauties without observing them.

But after being refreshed with this expanded acquaintance with the world's great garden, the amateur

will return contented and pleased to his own limited domain, which yields him special pleasures in the season of spring. A large portion of the past months has been uphill work, animated by hope rather than by actual possession; but now hope is to be realised, and every labour amply repaid. The neatly-nailed wall trees now hang out their blossoms; the standard fruit-trees no longer appear like barren sticks, but are garnished with beauties from the apex to the base; and the Strawberry plants, after arraying themselves in a turban of soft green, grace that turban with a profusion of flowers. The kitchen garden, so dismal during the winter months, gives the promise of Green Peas and Haricots, and puts the gardener on the tiptoe of expectation respecting the results of his Potato experiments. Every day the soil is broken by thousands of seedlings, either projecting a sharp spike, like the endogenous Onion, or a minute branch, like the exogenous Bean. After warm showers we may see things grow, and the hand of industry, so lately reposing with the dulness of nature, scarcely knows where first to direct its efforts.

But it is among his flowers that the amateur finds his richest reward, and expatiates with a happiness only alloyed by an occasional slug, or an unexpected hailstorm. Until lately the florist had to enter his greenhouse, or thrust his head into pits or frames, to survey his beauties, but now they become less coy, and walk abroad in the unfettered parterre. What a source of delight it is to feel the buds of the Roses yet folded up in their leafy sheath, and to catch a glimpse of the future flower in the spindling branch of a Car-

nation! Every day brings forth some new candidates for your approving smiles, until at length

> "Along these blushing borders, bright with dew,
> And in yon mingled wilderness of flowers,
> Fair-handed Spring unbosoms every grace."

VIII. HIVING A SWARM OF BEES.

The writer having met with an adventure in connection with bees, feels disposed to communicate it to his readers, who may be as inexperienced as himself in the management of this curious and useful insect. By withholding information, from the fear of being commonplace, we often keep back precisely that kind of matter which the majority of readers need, and therefore, after much hesitation, it has been determined to commit to paper the following simple recital. Many more persons would keep bees if they knew how to make them profitable, or even to manage them with anything like success. What follows being the result of personal experience, may be relied on as an example as far as it goes.

We have kept a few hives for some years, having unadvisedly bought most expensively a lot of wooden boxes with glass doors and other paraphernalia, professing to be on Nutt's principle, but of which we never could make more use than of common straw hives, for which they have been used as substitutes. Every spring, our man has amused us with a most elaborate

metamorphosis of his person when the bees swarmed, his head being enveloped in crape or muslin, his sleeves and trousers' legs tied tightly, to prevent the ingress of a bee, and his hands covered with hedgers' gloves. Then came certain cabalistic rites with brass kettles, tongs, &c., the ding-dong of which was believed to produce most important effects in quieting the bees. All this, combined with the manifest fear of the man, notwithstanding all his precautions, and with the fact, that our bees more often than not swarmed on Sunday, has associated the process of hiving a new colony with noise and confusion, and a sort of undefined witchery, partly laughable and partly romantic. However, the result was in all cases that the stock was safely got in, and the matter then rested, until another season brought about the same excitement and din.

Now it so happened that this time we had no servant man on the premises, and our thoughts never had recurred to bees, or the necessity, in such hot weather, of being prepared for their swarming; when, all unprepared as we were, our little daughter came running in and exclaimed, "O papa, there is a large swarm of bees on the apple tree by the old hive." Sure enough there was a grand collection hanging like an inverted cone from a branch of the said tree, about seven feet from the ground; and now, what to do was the pressing question. We sent to all the neighbouring farm-buildings, but no man could be found. In the interim, I rummaged an outhouse for a wooden hive, and found one full of cobwebs and dirt, with the old comb sticking to it on all sides. While the man was being looked

for, I cleaned this spider's den, and well rubbed the inside with beer and sugar, made thick like syrup. This was the extent of my knowledge, and what to do further I could not tell. But being left to my own resources, I took down the "Encyclopædia Perthensis" (which, by the way, I always find a good authority in practical information), and there I read that the bees should be swept off the tree on which they hung into a hive, or, if the branch was small, it might be cut off and laid on a cloth on the ground, the hive being put over the swarm. There being a chance of the bees flying away if not speedily attended to, I determined to grapple with the difficulty myself. My wife protected my face with crape, and I put on hedger's gloves; but having always found I could go into the midst of bees without being molested, I confess I did not fear so much being bitten as losing the swarm by unskilfulness. I then sawed off the branch about three feet from the bees, and my wife, without the least protection on hands or face, supported the other end, and when the cut was complete, we together laid it on a cloth on the grass. The hive was put above the swarm, the position and shape of the branch forbidding a very near approach. Over the whole was placed a tablecloth, and before five o'clock every bee had ascended into the hive. As soon as it was dusk, the hive was placed in its destination, and the colony has been hard at work ever since.

The experienced will say there is nothing new in all this. Granted; but the knowledge of another man is of no use to me unless I know how to act upon it.

"Necessity is the mother of invention," and while, if I had had help at hand, I might never have known how to get a swarm into a hive, my necessities compelled me to be prompt and self-reliant. Others may be situated as I was, and by telling them how I acted with success, I may embolden them to do the same. It is certain that bees are less disposed to sting than they are popularly thought to be, and if no unnecessary noise or disturbance is made, they may be even handled with safety. Not a bee rested on us while we were removing the branch, and my armour, put on for defence, proved a source of annoyance instead of being of any advantage. Virgil's account of hiving a swarm is worth reading (Georg. iv. 64). In his day the pots and pans were in use—

"Tinnitusque cie, et Matris quate cymbala circum."

IX. THE RANUNCULUS.

If former directions have been followed in reference to this beautiful flower, the amateur will be on the tip-toe of expectation, in daily hope of discerning the first spots and edgings of the petals, which, when fully expanded, are to reward him for all his labour. Most pleasant is it thus to watch a bed whose soft green is so soon to be variegated with so many beauteous forms and hues. The curious eye will find much to admire, even in this incipient state, in a Ranunculus bed. The colour of the leaves presents

many different shades, and their shapes are equally various. Then come, one after the other, the expanding flower-buds, from a deep maroon to the purest white, imperceptibly gaining a more distinct character of beauty, like stars appearing on the azure ground of a summer's evening. The extreme loveliness of the flowers is set off by the humble character of the foliage, which thus confers on them

> "———— a double charm,
> Like pearls upon an Ethiop's arm."

While excessively hot weather is highly favourable to the development of all flowers, it has its inconveniences and dangers with those classes which are impatient of drought, and naturally shun the full orb of day. In a former paper I have stated that I had grown Ranunculuses well in various soils and situations, but that some degree of shade was necessary to success. I have, however, succeeded in bringing them to the state of full bloom in a very hot and arid locality. This has been effected by constant attention to the state of the soil, which should, on the one hand, never be saturated, and yet, on the other, must always be moist. If the surface of the bed is smooth and hard, turning water off it like the back of a duck, you may be sure something is wrong; for although the prosperity of the roots demands that the soil should closely embrace them, it should yet have the porosity to air and water on which the welfare of all vegetation depends. Stir the surface therefore with a blunt stick, and prevent it from caking together, so that the water may quickly

run through. A little weak liquid manure will be advantageous, just as the flowers are coming into bloom; but it must be carefully applied, so as not to touch the foliage; or, if it does, fresh water must be directly sprinkled over the leaves.

As the flowers show their colours, they had better be shaded from hot suns, but cautiously at first, as it is from solar light and heat that their beauty is derived. The object of giving shade is to prevent the colours fading, and therefore a little thought will regulate the process. When the flowers are expanded, then the covering may be kept on until the beauty is past. A bed exposed to the sun and rain, while in bloom, will very soon lose its beauty, but attention to shading will preserve the flowers for a long time. The best covering is an awning of calico, placed sufficiently high to allow a good inspection of the bed; the calico may be strained on a wooden frame, and the frame supported on four stakes; but taste will dictate the best mode. All coverings should be made to harmonize with the general arrangements and appearance of the garden, for the prettiest place may be disfigured by awkward contrivances to protect or preserve a few favourite plants. I remember seeing a fine collection of Dahlias so oddly travestied by various contrivances to entrap earwigs and preserve the bloom, that I felt I had rather be destitute of the flower altogether than submit to such a motley display.

Some Ranunculuses will require to be supported with stakes, especially the older kinds. The new seedlings are of a more robust habit, and have the desirable pro-

perty of supporting themselves. Use little sticks, and do not allow them to be seen above the flowers. An attention to these regulations will give the bed every advantage, and for a month to come you will have an exhibition worthy the contemplation of your friends. While the plants are in bloom, observe the various kinds, that you may discover whether they answer to their names, and fix on the sorts you think most worthy your attention another year. But take care you do not become a flower-worshipper, which there is some danger of. *Ne quid nimis* is a very proper motto for the gardener, and the observance of it will keep him from the temptation of neglecting other duties in the pursuit of what may easily become, and often has become, a passion.

. The foliage quickly fades when the flowers decay; then comes the critical time with the Ranunculus grower. The wet season of July has often ruined the hopes of the amateur for another year. The tubers very soon sprout again if left in the ground, and when they do so, they seldom bloom well the next season. I would advise, as the result of some experience, never to allow the rain to come on the bed after the flowering time, which may be prevented by the continued use of the awning in wet weather. Take up the roots as soon as the leaves are yellow, and let them be gradually dried. But the subject of preserving this root must not be summarily dismissed, and I close my remarks on the Ranunculus for the present, by wishing all my readers as much pleasure from their beds as I have often found in mine.

June.

" Short is the reign of night, and almost blends
The evening twilight with the morning dawn.
Mild hour of dawn! thy wide-spread solitude,
And placid stillness, soothe even misery's sigh.
Deep the distress that cannot feel thy charm!
As yet the thrush roosts on the blooming spray,
With head beneath his dew-besprinkled wing,
When, roused by my lone tread, he lightly shakes
His ruffling plumes, and chants the untaught note,
Soon followed by the woodland choir, warbling
Melodiously the oft-repeated song,
Till noon-tide pour the torpor-shedding ray."

The Calendar.

Flower Garden.—Turn out plants from the greenhouse when out of bloom, to harden during the summer months, and occupy their places with the more tender kinds, and with fine annuals. Attend well to the training of the flower-beds by pegging down the shoots of trailing plants, and fixing supports to those of upright growth. Carefully watch the Ranunculus bed, as recommended in another place. Let advancing Carnations and Pinks receive frequent oversight, to regulate and tie up their shoots. Bulbous plants, of which the leaves have withered, may be taken up, and gradually dried in a cool airy place. In very hot and dry weather give

an abundant watering. This will be far better than more frequent but slighter applications.

Kitchen Garden.—Still sow crops for succession. See that the Asparagus bed is attended to, as directed in the paper devoted to that subject. The full crops of Broccoli should be got in by the end of the month; and also some rows of Cabbages for use when young. Cucumbers may be put out under glasses. Provide for an early crop of Endive by a small sowing, and continue successions of small salading. Thin out Onions, Turnips, &c.

I. HINTS ON THE GENERAL MANAGEMENT OF THE FLOWER-GARDEN.

The fine weather to be expected now, renders necessary the utmost expedition in completing all floral arrangements. The rapid growth of Grass lawns, and of those tests of a gardener's temper, weeds—the demands made by plants in pots lest they should become root-bound—and all the other services rendered imperative by a hot sun and a drying wind—all these things are now tasking our energies to the utmost, and will probably make many amateurs almost weary of their responsibilities. But "never give up" must be our motto; the preliminary work of spring will soon be completed, and everything being established in its place, you will have time to look on and enjoy the result of your labours. Plants recently transplanted will

flag, and your lawn will persist in decorating itself with Daisies and Buttercups; but these tiresome whims exhibited by nature in the exuberance of her youth will soon be exchanged for a sober stability.

As a general rule, wait for a shower of rain before you transplant anything. I know how eager the amateur is to get everything out of hand, but too much haste in this will often throw his productions out of existence. Imagine, for example, the irritation which those must suffer who transplant annuals, &c., in dry weather, and then for a week or ten days find the sun brilliant, and the heat intense, accompanied by a drying wind. Without shading, few things could withstand such a combination of disadvantages. Bide your time then, and having retarded your annuals and other productions not in pots, as much as possible, avail yourself of the first shower to place them out. As it regards time and trouble, I had rather pot a thousand plants, and keep them in a frame till established enough to stand all weathers, than transplant them in the ordinary way, unless a rainy day could be secured.

Where ornamental trees and shrubs have been planted this season, let them be watched with an anxious eye, lest heat and drought should destroy them. These enemies are often very insidious in their attacks, and do not develop their effects until it is too late to counteract them. Water well, and place around the stem on the surface of the soil some mown Grass or other material, to prevent evaporation. On the other hand, do not be too free with the watering-pot in the case of transplanted productions, and always see that

the soil is kept loose, for if the water on being applied runs off like rain from a smooth surface, you may be sure harm is being done by the operation. Water must be freely absorbed to do good, for plants require air to breathe as well as water to drink.

Hollyhocks and similar herbaceous plants which throw up many stems must be thinned, if not done before, if fine flowers are wanted. Do this at once: Hollyhocks raised from seed are amazingly rampant in their growth, and should now be unsparingly pruned. Three stems are as many as can be made to grow well, for more cannot well be tied to a stake. By the way, put your stakes and supports to everything in good time. The forgetfulness of this rule is a capital offence in good gardening. If you do not begin to tie up until the plants are prostrated, you seldom secure an elegant growth. Be wise, therefore, in time, and let your props be long and strong enough to meet every emergency.

II. RECREATION.

In this hot weather a sense of fatigue often discourages the laborious gardener, and in his desire that nothing should be neglected, he frequently taxes his strength and patience too much. I have known amateurs who, in this way, have made a toil of pleasure, and been almost disposed to relinquish their favourite pursuits. The remedy for this is to indulge in that re-

creation which gardening so amply affords; to leave the work of the hands for the exercises of the eye and ear, and to revel in those rural sights and sounds which at this season Nature so prodigally furnishes. Cultivation may become a passion, and be carried on for its own sake, irrespective of the end it should contemplate. The end is, that we may gratify our senses and our intellectual powers with what is produced, that we may be at the same time rewarded for the past, and stimulated for future labours.

On a fine day at noon, when the sun's rays render labour undesirable, let us sit on the rustic seat, under the spreading Tartarian Crab-tree in the centre of the lawn. The foliage of this tree is completely developed early in May, long before the apple is generally in leaf, and beneath its shade we may catch the fine breeze, warmed by the sun's beams, while we are defended from its direct rays. How glorious is the prospect on every side! Nature is putting on her spring dress, and the incipient clothing looks like a garniture of innumerable emeralds. But perhaps the nearer view is the most interesting, made up of our Tulip and Ranunculus beds, our Roses just beginning to flower, and all the other beauties, brought to perfection by months of care. In such a state of repose all past labours will be forgotten. The mind, invigorated by the pleasing reflections suggested by new-born vegetable life, will feel proud of its power to mould and produce so many beauties, and the slanting rays will scarcely be waited for before we are ready to labour afresh in so remunerating a service.

The peaceful hours of the Sabbath day present to the gardener a favourable opportunity of enjoying the work of his hands; and under the restrictions which piety will suggest, the garden may properly be made to add to the intended benevolent purposes of the day. Far be it from us to hold out the slightest encouragement to the too prevalent practice of cultivating a garden on Sunday—a practice which may be seen in full operation any week in the suburbs of London. To dig and weed and prune are manipulations beneath the high intentions of the great holiday of Christendom; while to walk out and observe and enjoy the past labours of our hands is rational and commendable. We never see cottagers walking in their allotments in the intervals of divine service, without feeling thankful that a recreation so innocent is within their power. In their best apparel, with their wives and children, they are repaid for their toils, on the results of which they look, and are animated to new labours in time to come.

We lately sat under the above-mentioned Crab-tree, and became afresh convinced how exuberant are the resources of happiness presented to man by his beneficent Creator. Closing our eyes, we allowed our ears exclusively to perform their task of pleasing us, and within the short space of five minutes how many expressive notes we were conscious of! First there was the hum of bees and other insects, the varied sounds of which are scarcely distinguished, until the attention is solely given to discover them. Being the middle of the day, the sweet song-birds were silent, but innumerable chirpings told how thickly every tree and hedge

was peopled, and by what a natural aviary we were surrounded. Listening more attentively, the crowing of distant cocks added to the music; in all quarters these birds uttered their notes at regular intervals, apparently responding to each other. It was as though the community of fowls was establishing a vocal telegraph for the benefit of the body politic. The lowing of oxen mingled sweetly with all these sounds, and completed the harmony. Then, as if to point out the fact that man, with all his natural advantages, is a social being, the bells of a neighbouring church began to chime, and the idea thus suggested was confirmed by the voices of a group of children, whose merry greetings compelled us to open our eyes, and dispelled our dream.

We hope this little episode will not be unacceptable. Horticulture never exerts its proper influence until it is linked with intellectual operations, and has thrown around it the emanations of the fancy and the heart.

III. CLEARING UP FOR SUMMER.

The advance of the season now reminds us that preparations for the beauty of the flower-garden must cease, and everything necessary to produce effect must be in its final resting-place. The longest day is past, and summer has fairly set in. Go round your grounds, and see what vacant spots require filling, and what over-planted beds will bear thinning out. What is not sown nor planted now must be left till another

year, since every foot of ground should be in the process of becoming occupied by productions far advanced. If you have neglected to get a proper stock of plants ready, regrets will be vain, and you can only profit by your present disappointment by forming good resolutions for the time to come.

But every garden will now be much improved by a general clearing up, if that necessary operation has not yet been attended to. The spring flowers are over, and have left their unsightly and decaying litter behind them, which should be at once removed. And first, in reference to bulbous plants which have done flowering, you may now take them up according to previous directions, and dry them and stow them away for planting in autumn, or you may cut off the tops and leave the bulbs in the ground. My plan is to take up Crocuses, Tulips, and Hyacinths once in two years, unless I have some scarce sorts which require special care. If you resolve to leave them in the ground, guard against any impatient or premature assault on the foliage, which, although destitute of flowers, and denuded of all beauty, is yet performing a very important part in the economy of the plant in anticipation of next year. Some persons pull up the leaves of Crocuses, &c., as soon as they begin to look littery, to the great prejudice of the bulbs, which can only become fully developed by allowing the foliage to continue until no vital functions can be performed by it. When the leaves are turning brown, and are partly withered, you may cut them off close to the ground, rake your beds, and plant what you intend to remain for the summer. I once saw in

a garden a mode of treating the foliage of Crocuses, which to me was original. The leaves were brought together, and tied in a knot, presenting the appearance of a lady's hair in papers; a most ridiculous practice, since the leaves can be of little benefit to the roots, when twisted together in this rope-like fashion.

Herbaceous plants which flower early, and have acquired a vigorous and out-spreading growth, may be brought into reasonable proportions, either by pulling up some of the stems, or cutting away a portion with the knife or shears. The beds should then be raked over, and if you think they require it, and have a stock by you, a little leaf-mould may be raked in with the old soil. Stake and tie up everything in the form you wish it finally to assume. Go over your Rose trees now coming into bloom, and prop up the branches which threaten to trail upon the ground. Short forked stakes taken from faggots of brushwood accomplish this purpose better than anything else. Verbenas and other creeping plants must be fastened to the surface by wooden pegs, in the directions you wish them to take. In short, look well at everything—stopping one, training another, and regarding the future condition of all. Every amateur of any experience knows how much the beauty of the garden henceforth depends on a little time and care wisely expended now. Let neatness everywhere prevail, and let no weed get into the rough leaf.

IV. FLOWER SHOWS.

When the cultivator of flowers has been successful in raising his favourites, and his parterres begin to develope their beauties, he is conscious of a very natural desire to show his productions to others. The wish that our friends should admire the same objects as we do, is an inseparable accompaniment of the amateur gardener, and has sometimes made him a mark for the merriment or ridicule of those who are destitute of his tastes. Often have I seen an inhabitant of the suburbs of London who is happy in the possession of about two poles of ground at the back of his dwelling, drag an unwilling visitor round and round his narrow flower-beds, and din his ear with the praises of his Cauliflowers or his Sweet Williams. In such cases the grower has links of fancy and of feeling which bind him to these products of his labour and skill, of which the spectator is unconscious, and the reluctant manner in which he follows his guide reminds one of a bear in the Zoological Gardens, who walks about indeed, and looks around him enough, but would evidently get away if he could from the chain which confines him.

But if the grower has to complain of undiscerning and tasteless mortals, who wonder at what they call his useless enthusiasm, he can always find devotees like himself in the nearest horticultural society, and there, in the presence of a company, "fit, though few," there will be no danger of his beauties "wasting their sweetness on the desert air." The tendency will rather be

the other way, for the visitors may be so critical and keen in their conceptions of floral excellence, that your productions may be blamed for not having been grown with sufficient care, or prepared for the show with the proper degree of art. But do not be discouraged at this, but join a society at once. Get the printed lists of articles to be competed for as early as you can, and then select those in the growth of which you are likely to be most successful. But I shall presume you have done this, and are now prepared to contest the reward of excellence or superiority with your neighbours. A few hints derived from my own observation and experience, in connection with a society of amateurs, may not be useless, in reference to the general subject of flower shows.

In employing art for the purposes of successful competition, let Art always be the handmaid of Nature, to wait upon and follow her rules, and to confer on her a higher beauty. This principle should regulate the choice of articles to be exhibited, for some will bend much and others little to the care of the gardener. Thus, what are called florists' flowers are always desirable objects, as they are so amazingly affected by a skilful growth. But the rule is adverse to the practice of what is called dressing flowers, that being an operation which more often alters than improves the subject of its manipulations. If by art a Carnation may present a form in a show-pan, which it never had or could have when growing on its stem in a bed, the triumph may be allowed in a technical point of view, but ought not to be admitted by a rational horticulturist.

A Carnation grower should seek the improvement of the growth of the flower, and not be satisfied with trussing and patching up the disordered petals with string and cardboard. The object is to make art so to bear on vegetable growth, that bad habits may be corrected, and symmetry and beauty more uniformly obtained. A visitor at a floral exhibition not initiated into the mysteries of flower-craft, who should see a stand of Carnations, and purchase of the exhibitor on the faith of their being so compact and regular, would have a right to complain, if he found the following year that these qualities were conferred by dressing. Skill in growing is, in my opinion, the object to be aimed at in horticultural societies, and artificial trimming should be discouraged. It is on the same principle that the system of sticking and propping up is objectionable, and is disused at the higher shows. Some Pelargoniums present an immense front of flowers, while the back is a miserable scaffolding of sticks; others throw off all their branches from one stem, and dispose foliage and bloom equally round their pots. The first may be more attractive, merely as presenting a mass of bloom; but there can be no doubt the latter deserve the prize, as developing most the subserviency of art to nature. *Ars est celare artem;* in floriculture especially, it is true that art should conceal itself.

A real love of science should be always made to repress a mere spirit of gambling in flower-shows. No one can have been long acquainted with the operations of such societies, without having seen a dangerous tendency in some minds to look for prizes for their own

sake. Persons have been known to withhold their patronage from these institutions, because sufficient prominence has not been given to some productions which they may happen to fancy, or perhaps to have in abundance in their gardens. The veriest rubbish has in this manner found its way to the exhibition, and when the folly of such a system has compelled its discontinuance, the guinea has been withheld and the patronage withdrawn. Unequivocal marks of disappointment and vexation may also be seen sometimes displayed by some unsuccessful candidate, although the superiority of the winning article is unquestionable. All such feelings and tempers will be best conquered by loving floriculture for its own sake. Those who do this will feel compensated for the loss of a prize by the superior method of growth which they now have exhibited for their imitation, and they will go and count their deficiencies by the higher examples brought under their notice. There is something very undignified in striving more for a prize of 10s. than for the honour of persevering efforts to improve the art.

In connection with the principle that Art should be made subservient to Nature in floral culture, it should be remembered that, in reference to fruits and vegetables, utility should always be the test of excellence. This rule is often forgotten at country shows, and a monstrous size is preferred to flavour and adaptation to culinary purposes. If a prize is offered for a Cow Cabbage, its dimensions must be considered of primary importance; but when Cabbages are mentioned in the list of a horticultural society, their fitness for the table

should regulate the decision of the judges. In the same way, with regard to fruit, flavour must be taken into account, unless rational views are to be superseded by mere enthusiasm. Of what use is a Gooseberry as large as a hen's egg, if it is almost tasteless? Yet it must be confessed that insipidity distinguishes many of these unusual growths, and if so, art loses its right aim, and expends its energies in trifles. The amateur should not pander to such folly, by competing for prizes with things he considers of no value, but should use his influence to bring about a more reasonable mode of estimating the productions of horticultural skill. I know the case of a nobleman who, on being asked to contribute to a horticultural society, said he would willingly do so, but he hoped it would not aim at producing *great* things, as he had never found large Gooseberries, large Celery, or large Rhubarb were worth eating. A large size without the diminution of fine flavour is the end to be contemplated.

If the decision of a judge appears at first to be contrary to your own judgment, it is unwise to be irritated, or to admit the idea that carelessness or ignorance have taken the place of discrimination. It is not always that which exhibits the most showy front which is really most worthy of approbation. Some productions may evidently be the result of more science and attention than others which have greater attractions, and as the object of a society is to encourage skill in growing, this circumstance must be considered. To return, for instance, to Picotees and Carnations, it is well known

that some kinds grow freely and flower well without much care, while others are exceedingly tender, and will only yield a good bloom to the patient and skilful cultivator. Now, suppose two stands of twelve sorts in each, presented to the attention of a judge. One stand may have decidedly finer flowers, in themselves considered, than the other, but on examination it is found that this more attractive collection is composed of flowers which are well known to be of easy growth, while the other is made up of those which demand much attention for their development. Ought not the latter to have the prize? I think so, if it is conceded that by a prize skill is to be rewarded. This is only one instance out of many I could bring forward, to illustrate the necessity of using thought and candour before we conclude that we have been treated unjustly.

The amateur should feel himself bound by every principle of taste and propriety, to exhibit his flowers in the best way he possibly can, so that as neatness and elegance adorn the most beautiful person, his favourites may have every external advantage. What an insult to Flora to exhibit Carnations in blacking-bottles or a bouquet in a pie-dish! yet both these violations of taste have I recently seen. Apart from the good sense and taste which will prevent such anomalous practices, self-interest should dictate a different conduct, for the vehicle will often regulate our opinion of the thing contained, and the mode of tying up may be all the difference between a rejected and an approved bouquet. I have known parties who have gained many prizes at

exhibitions, who yet penuriously refuse to spend anything in tasteful boxes or stands. Hence, cut flowers appear in old baskets, Roses in kitchen crockery, and Pansies on the lid of an old hat-box, pierced with holes for their reception. Much depends upon the officers of societies for the prevention of this vandalism, and committee-men should habitually discourage everything that will render an exhibition unfit to be an abode of the Graces.

Great care should be taken that your plants and cut flowers for exhibition are well provided with moisture, as on that will depend much of their success, and sometimes much of their safety. A stand of Pansies will often present shrivelled flowers at the time the judges go round, because the stalks do not reach the water, and the whole are thus rendered unfit for competition. Plants in pots, when carried from place to place and exposed much to the air, exhale more rapidly than usual, and should therefore have an extra supply of water on the morning of the show-day. But, perhaps, I am descending to particulars too minute, and will leave the subject. In reference to shows generally, I have a high idea of their value, both to cottagers and persons in higher walks of life. The following extracts from the report of a country society may be appropriately introduced:—"It may thus be fairly presumed that the horticultural society has answered the direct end contemplated at its formation, and has silently improved the practice of gardening. One result of a collateral character has been undoubtedly obtained; that is, the

promotion of kindly feeling among all parties in the town and neighbourhood, who, forgetting among the gentle scenes of Nature the differences of public life, have found a pleasure not soon to be forgotten—a pleasure procured without the sacrifice of principle and followed by no regret. The committee therefore feel they are justified in asking for this institution the continued support of its patrons, and they conclude by enforcing their appeal by the following elegant tribute to the value of the pursuits they are anxious to encourage:—'The cultivation of flowers is, of all the amusements of mankind, the one to be selected and approved as the most innocent in itself, and most perfectly devoid of injury or annoyance to others; the employment is not only conducive to health and peace of mind, but probably more good-will has arisen, and friendships been founded by the intercourse and communication connected with this pursuit, than from any other whatsoever. The pleasures of the horticulturist are harmless and pure; a streak, a tint, a shade, becomes his triumph, which, though often obtained by chance, are secured alone by morning care, by evening caution, and by the vigilance of days; an employ which, in its various grades, excludes neither the opulent nor the indignant, and, teeming with boundless variety, affords an unceasing excitement to emulation, without contention or ill-will.*' "

* Journal of a Naturalist.

V. GENERAL MANAGEMENT OF THE FLOWER-GARDEN.

The rains, while they delight every gardener, increase his responsibilities and labours. So heavy in June are some of the showers which fall, that the ground is often pressed into a compact mass, unfavourable to the growth of plants recently bedded out, transplanted annuals, &c. The rake must therefore be carefully applied as soon as possible, that, the surface being pulverised, every facility may be given for healthy and rapid growth. The soil being like a hotbed, weeds will almost suddenly come to a great size, and hoeing and raking must diligently keep them down. A few days' rain and wind show a gardener his weak points in reference to staking and tying-up. All things before neglected in this way should be attended to immediately; for Hollyhocks and similar growing plants, if laid down by the wind, will turn up their tops vertically, and it will be afterwards difficult to get them erect. Place stakes long and strong enough, and use strong cord for fastening; otherwise, when the flowering plants are in their glory, and a gusty wind arises, the peaceful slumbers of the night will be contrasted with vexation and wrath, as you see in the morning your favourites prostrate on the ground.

Everything should now be in the place it is intended to occupy in the flower-beds, for, generally, nothing put out after the middle of June will make much show, unless, indeed, at the time of removal, it is a full-grown plant. Allow for the growth of everything, that in a

short time the beds may be filled. Verbenas, Petunias, and other creeping plants, should be trained and fastened with neat hooked sticks, or brushwood may be stuck all over a bed, and the plants allowed to climb and trail among it. This plan produces a good effect. Small beds of Verbenas look beautiful when surrounded with basket-work, made either of wire or osiers. In short, taste and judgment are now demanded, and if exercised in time, the happiest results will follow. It is lamentable to see how time and money are thrown away in some gardens, through the absence of a presiding spirit to do for the plants and flowers what Milton represents as one of the occupations in Paradise of Adam and Eve.

Look over all young standard Roses, and where strong branches of the head appear heavy, protect them, or a high wind may rend away the whole graft from the stock. Two years at least must elapse before a budded Rose can be safely left to itself.

VI. ROSES.

Rains at this season will be most propitious to the Rose garden, and exhibit this beautiful flower in its glory. There are some details of management which must now be attended to, if the beauty of Roses is to be seen to the greatest advantage. As the best formed frame and the sweetest countenance have their charms enhanced by a neat and becoming dress, so the gardener

cannot too frequently remember, that while Nature is the great mistress he is to serve, he may, by proper control and the exercise of taste, greatly heighten her beauties.

When a collection of Roses comes into bloom, it should be looked over for the purpose of having its branches regulated and tied up where necessary; for, however careful the amateur may be in staking, tying, and arranging in the winter and spring, it is impossible to calculate exactly every branch, so as to provide against an excessive drooping of those which are most loaded with flowers. After rain is the best time to survey your trees, and having bass-matting or string in readiness, where a branch seems inclined to fall out of its place, tie it up; but avoid extremes even in neatness, for a little irregularity is often beautiful in flower training. The object should be kept in view, which is to show the flowers to the best advantage, and not to secure the smoothness and symmetry of an architectural column.

To keep up a fresh and neat appearance, the flowers should be taken off just as they begin to wither, and not be allowed to drop and be blown abroad on the beds and lawns. The best plan is to cut the fading bud to an eye, thus leaving the branch in the proper state for its future growth. In large collections this may seem an endless process, but much is done in a little time. Young ladies may amuse themselves in this way to advantage, and they should have the Rose leaves for their pains, which they will know how to dry and turn to account in scent-jars, &c. Boys and

girls can do much in keeping a Rosary in order, and the labour is certainly as pleasant as many games on which the strength of the youngsters is expended.

When the perpetual Roses have given their first crop, the trees may receive a little liquid manure to encourage the growth of new wood. All Briers will be sending up their young shoots at the base of the old stem, and they must be cut off close to the stock, unless you choose to bud on them for the purpose of training some variety up the stake to meet the budded head, as there is nothing elegant in a pole and a Brier stem. I do this with all my standards which have no undergrowth of other productions. I also bud on the young Briers just spoken of when they shoot a little distance from the stem, and remove them in winter, when they make good trees. Your Briers must now be budded without loss of time; for directions refer to other papers.

July.

"The honeysuckle's clinging sweets
Vie with the blushing rose;
And nature's flowers spring forth in heaps,
To deck the wild hedge rows.
O beautiful but hot July,
What treasures do you bring
I'd chant, another hour, your praise,
But am too hot to sing!"

Pictorial Almanack, 1848.

The Calendar.

Flower Garden.—This is a very laborious month, for much work has to be done, while the weather is too hot to make exertion easy or pleasant. Spring flowers have now done their work, and their decaying remains must be removed. Advancing exotics grow rapidly, and require constant attention to arrange their shoots, either by pegging down or tying up. The general propagation of all things to be perpetuated and increased must not be neglected, and sticking, layering, and piping should be got out of hand. Carnations and Picotees must have careful watering, and the buds be watched as they swell into bloom, that they do not burst in an irregular manner. In hot dry weather, water Dahlias after sunset, over the foliage, and keep a look out for earwigs, which sadly infest them. Divide

Auriculas, Polyanthuses, &c., at the end of the month, choosing a moist day for the operation. Take up and dry Ranunculuses, Tulips, &c. As weeds rapidly run to seed, let them be exterminated while young.

Kitchen Garden.—Sow Peas for the last time about the end of the month, in well-trenched soil incorporated with rotten dung in a moist state—the great enemy of late Peas being mildew, produced by dryness of the roots. Get in the main crop of Celery at the end of the month. Thin the fruit of wall trees and espaliers, if necessary. Remove useless shoots from Gooseberries, Currants, and Raspberries. Look to the beds of Asparagus and Sea-kale, which are apt to be neglected at this season, and thus become injured by weeds.

I. PROPAGATION OF PINKS, CARNATIONS, AND PICOTEES.

Although the finer varieties of these beautiful flowers require great care in their cultivation, and will often disappoint the amateur, their great beauty will yet insure the patience and skill necessary for their successful growth. I lately saw a handful of Carnations in a friend's hand, and wondered that efforts are not made to grow them in greater profusion. Many are disgusted with the losses which occur from bad management in their first attempts to get a collection, and give up the pursuit; but this is not wise. A season or two will make the grower more skilful and fortunate

Seeing these flowers advertised, an amateur orders a lot, and pays perhaps £2 or £3 for a dozen pairs. These come probably from a distance, not in pots, as they ought to do, but with their roots exposed, and before they can be placed in a safe position they have suffered much injury. A wet season then comes on and the young plants, not being strongly rooted, rot in the ground. If they escape this catastrophe, they often throw up only a miserable flower, unworthy of notice; no *grass*, as the offsets are technically called, is produced; and sometimes the original plants will turn yellow and die. When, after all his trouble, the would-be grower finds his dozen pairs reduced to about half the number, he despairs of becoming an adept in the art of flowering these plants, and retreats, leaving the field to more fortunate, because more patient, rivals. Now, try another season at all events, and, without incurring fresh expense, propagate from the stronger varieties which yet survive; in this way you will advance more confidently, and at length overcome difficulties which arise from want of experience more than from any peculiarities inherent in the flowers.

Common Pinks and Carnations are increased easily by cuttings taken off at a hard, well-developed joint, and planted in a shady situation in the garden; if under a hand-glass, success is more sure. But we have known great quantities rooted without that aid, by being preserved for a few days from the sun, and kept moist. The soil should be sandy, and the cuttings fixed in it, so that it shall press firmly upon the cut portion. But this plan will not do for finer sorts of Carnations and

Picotees, and the safer way is to propagate these by layering. So many directions have been given for the performance of this operation, that anything further on the subject may appear to be superfluous; but as amateurs are yearly rising up and commencing their apprenticeship, such information must be continually renewed. The principle of layering is to enable a cutting to take root without its connection with the parent plant being quite dissevered, on the plan in which inarching and similar operations are performed. A cutting often dies, because from some cause inherent in itself, or external to it, its power of elaborating sap is not strong enough to enable it to form roots; and this power is increased and rendered certain in a layer, because it derives its juices from the parent plant. An incision is made upwards at a joint, to the extent of about half an inch, and a section of the stalk or stem is thus presented, similar to the portion inserted in the soil, in the case of a cutting, only it is half the substance or thickness. This cut portion is then firmly inserted in fine soil, and fastened securely with a peg. The layer then forms roots from two sources; from its own vital mechanism, as in the case of a cutting, and from the assistance derived from the original plant, of which it still forms a part. When rooted, the layer is cut off and potted, and henceforth its growth is self-sustained and independent.

Where a great number of young shoots are available for propagation, a very gentle heat should be created by means of a bed of leaves or cut Grass, on which a small frame should be placed. Sandy soil must then be put in, to the depth of 6 inches, and the cuttings, with all

their leaves, firmly fixed as directed above. The glass being put on, the frame should be kept close for a week, and shaded for a day or two; and solar light being gradually admitted, the young plants will form roots more rapidly than in the open ground. Extremes of drought and moisture must be carefully avoided, since the one will rot the plants at the cutting, and the other will cause the soil to contract and leave the cutting bare. Failures must be expected at first, but soon as great a certainty will characterise these operations as most others. This is the proper time for pursuing either of the above methods.

II. PROPAGATION OF PELARGONIUMS.

The old plants of these flowers which have been so gay in the window lately, have now for the most part shed their bloom, and must be submitted to the treatment best adapted to the propagation of young plants, and to render themselves handsome another year. The first thing required is to cut them down to within a few inches of the pot, the operation to be regulated, of course, by the size to which the amateur desires to grow them. Each cut must be made just above a bud or eye, such bud inclining within or without or laterally, according to the position it is wished the future shoot should assume. Great attention must be paid to this rule, for if a plant is merely cut down without reference to the position of its buds, an irregular and cross growth

is sure to follow. The portions thus cut off must then be looked over, and as many selected as it is thought desirable to preserve. The cuttings should be about four or five inches long, the part to be inserted being of this year's wood, in a firm ripened state, but as young as possible, so long as you can observe that condition. Cut them off exactly below or through a joint, and they will then be ready for planting, every leaf being retained above the part to be inserted.

If the stock of cuttings is but small, each may be placed at once in the pot it is to occupy; but if a large number is required, six or more may be put into one pot, to be planted out when rooted. At this season, or any time during August, cuttings of Pelargoniums will strike readily in the open ground, if shaded for a few days at first, and not allowed to suffer drought. But as this is the time when a general propagation should be commenced for next year, the amateur is recommended to make a gentle hot-bed, and to plant his cuttings either in the soil of the bed, or to place his cutting-pots in it. If the surface of the plants is kept at about fifteen inches from the glass at first, little or no shading will be needed. Plenty of air must be given after the first day or two, and the soil kept moderately moist. By these means a stock of fine bushy plants will be got ready for next spring, and will be found more elegant, and better bloomers than the old ones. In potting, use a light turfy soil with a mixture of leaf mould and sand, and take care to have a good draining secured with crocks at the bottom of each plant.

After the old plants are cut down, let them stand

until new shoots are made, when they must be taken out of their pots, and all the soil shaken from them. The roots must then be reduced in size, bearing some proportion to the size of the head they are to carry. Repot, and treat in every way like fresh-struck cuttings, until a vigorous growth in the spring renders more pot-room necessary. Plants more than two years old are not worth preserving. Some kinds of Pelargoniums grow very fast, and it will be necessary to shorten the shoots by nipping off the top. This will lead to the production of laterals, and secure a more compact habit. Scarlet Pelargoniums must be propagated now by those who intend to use them plentifully in their gardens next year. This may be done gradually, by removing a young shoot here and there from the plants in the flower-beds.

III. ON PRESERVING BULBS, &c.

As far as my experience extends, bulbs generally keep well in the ground, especially Hyacinths, which when taken up manifest a strong tendency to decay, although they rarely fail of appearing again when let alone from season to season. Tulips and Crocuses are less subject to disease when dried and put away during the summer, but in the ground they never suffer at all. Why, then, is it considered indispensable to remove bulbs every year? Not for their safety, as every gardener knows, but for the maintenance of their good

qualities. Tulips left in the ground for only one season will deteriorate in their bloom the second year. But it is worthy inquiry why the flowers of bulbous plants lose their size and beauty, unless the roots are taken up every year. I cannot pretend to answer the question, which requires a physiological acquaintance with the structure and functions of bulbs, and an extensive collection of facts, but will merely throw out a suggestion, to which others may give a practical bearing. Is it not the division of the bulbs, the separation of the offsets, and there planting into new soil, which keeps up the quality of the flower? If so, and if being kept out of the ground some months has nothing to do with this effect, then the safest mode of treating bulbs will be to dig them up, divide, and replant them at once. This theory, which has led to practical results in the case of the Potato, may be equally applicable to Tulips and Hyacinths.

But supposing the system of harvesting is adopted, care must be taken that the foliage is fully decayed before the roots are raised, as this is the only certain proof that the bulb is at rest. Before this time the elaboration of juices is not complete, and the want of consolidation will expose its subject to premature decay. I know how much impatience is felt by persons who value neatness in their gardens, to remove the humble foliage which can no longer produce a flower, but the feeling must be checked if future success is an object. When the ground is wanted for other things, bulbs may be carefully removed with a spade to another spot, without disturbing the soil about them, and they may

then mature themselves without being grudged time and opportunity for that important work. But at all events, they must be ripe. When this state is ascertained, let them be taken up and dried, first in the shade, and afterwards in the sun. The loose skins and roots should then be removed, and the collection may be stored away till the planting season. But remember the old proverb, "Out of sight, out of mind," and do not suffer it to be true of your bulbs. You may fancy the roots are fully dried, and think no further care is necessary; but some wet week in July or August you may find them exhaling moisture, and requiring diligent attention. To prevent this, let them be spread thinly in their depositories, and have plenty of air.

The Ranunculus cannot be left in the ground without injury to the root and the future bloom, and its drying is an important part of the florist's duty. The object should be to secure a plumpness of the fangs of the root, and at the same time sufficient dryness to resist mildew. If Ranunculuses are exposed to the air too much when first taken up, they shrivel and perish during the summer from atrophy. They must be dried very gradually, and then put away in drawers, each kind being enclosed in a little paper bag. Some recommend their being kept in sand, but there is danger in this; if the sand acquires moisture, the roots will soon be injured. Having tried both plans, I have found the former decidedly the best.

IV. RESERVE BED FOR WINDOW PLANTS.

To persons who are not in possession of a greenhouse, it is a most important matter to be able to keep a stock of healthy flowering plants to decorate the window of a sitting-room. The general lover of flowers will not be satisfied with having a well-stocked garden; he must also have some pets to employ him in wet weather, and during the months when, out of doors, plants are not in bloom. He will also feel that flowers adorn his dwelling more than the choicest works of art, and to secure them in succession will be willing to incur some expense and trouble. Much has been written on the proper treatment of plants in rooms, and their successful management demands some skill and much attention. But without a greenhouse to rear them in, how is a variety to be obtained at all seasons? This question we propose to answer as far at least as the summer months are concerned. We hinted at the matter some months back, but are now better prepared, from actual experiment, to recommend a reserve bed for window plants in pots. The plan about to be described has been found so advantageous that we think many will be pleased to have it in detail, that they may adopt it themselves.

When a Rose tree or a Fuchsia has shed its bloom in the window, it is generally removed to the garden, and there takes its chance among many other things; receiving water sometimes and being scorched up at others. This at least has been the fate of my own

stock, and in but few cases have plants thus treated flowered well a second time. To provide against the danger of humble things being forgotten, and to secure a further bloom from plants of a perpetual flowering character, such as Roses, Fuchsias, and Scarlet Pelargoniums, I have appropriated a piece of ground as a reserve bed. It has a southern aspect, so as to secure for the plants all the sun possible, and is protected from the north winds by a low wall. The soil of the bed is very light, being composed principally of leaf-mould and rotten dung; this is of no importance to the plants, as they are not to receive any benefit from the surrounding earth, except an equal and regular supply of moisture, but a light soil is more convenient to handle in the frequent removals which will be necessary; it also adheres less to the feet and the pots in wet weather.

When a plant appears to have done blooming, I cut off all decayed flowers, and also reduce the branches a little, cutting down a Rose, for instance, to a plump bud. I then examine the roots, and if they have become cramped I loosen them carefully, shake out a little of the exhausted soil, and repot in fresh compost. Having received a good watering, the plants are then buried up to the rim in the reserve bed, allowing at least a foot distance from other plants to each of them every way. If they are then covered with the mowings of the Grass plot about an inch deep they will require no watering, unless the weather should be more than usually dry. Every week they must be looked over, for the purpose of weeding, tying up where required,

clearing from green fly, &c. When bloom appears, take them up and remove them to the window, putting in their places other pots treated as directed above. As roots are apt to protrude through the bottom of the pots, it will be well to turn the plants round occasionally. If this is not done, and the roots lay hold of the subsoil, they must be broken off at removal, and the plants may flag in consequence.

I believe I have had double the number of plants in bloom by the adoption of these simple means. Try them, and you will be gratified by having a reserve bed occupied by pots which will be ready to bring in at a time when flowers become scarce. Protect them when there is any danger of frost, and by careful watching some will do well out of doors till November. Roses and Fuchsias thus treated will have time to form fresh shoots and flower-buds before the cold weather comes on.

V. DAHLIAS.

These fine ornaments of large gardens are now beginning to flower, and require some attention, to ensure good blooms and a healthy growth. Some cultivators prune extensively, so as to have only one leading stem, and but few laterals, until the plant has attained a good height. That only one shoot should be trained in the early management of the Dahlia is doubtless the best treatment, but to what extent laterals should be suppressed is an affair of taste, which the amateur must

regulate for himself. The plan which has been often recommended as the best for making the most of a Dahlia, and displaying its luxuriance to greatest ad- advantage, is to tie up the laterals to smaller stakes arranged symmetrically around the central one. Let the sticks and the tying material both be trustworthy, for the Dahlia has to stand very rough weather when it is in the finest state of bloom, and its being prostrated by the wind is a misfortune to be averted by all means. The plants should be looked over every day, that tying may be attended to before an ungainly growth takes place.

Dahlias will not bloom well unless a degree of moisture is kept up at the root; and sedulous attention to this is indispensable. Many fine flowers are stunted in their growth, and deformed in their bloom, because the soil is too dry. Constant watering being attended with trouble, and also being undesirable, because it washes the best properties of the compost beyond the range of the roots, it is strongly recommended to mulch the surface to about 9 inches all round the plant. I once put the mowings of the lawn to this use, laying on a thick stratum of Grass round each Dahlia. Previous to this being done the soil must be thoroughly soaked, and one such watering will last for a week, although without the mulching one dry day would render the operation again necessary. Having arranged my Grass coverings in good order, I was much pleased with the plan, and thought it improved the appearance of the Dahlias; but this satisfaction did not last long, for the next morning I found every little heap scattered in all

directions by the claws and beaks of birds, who appear to have left all other pursuits, in order to revel in my handiworks. I found, therefore, that one labour led on to another, and I collected the Grass again with a rake, and fenced each mulching with brushwood laid over it, and fastened into the soil. This must be done, or neatness is at an end, and it must be done effectually too; for I find wherever there is a gap in my inclosures, the birds trespass and drag out the Grass. I expect they find insects sheltered in my mulchings, and that this is the cause of their pertinacious efforts to undo my works.

These mulchings should be kept moist, and this can be done by sprinkling a little water daily from the rose of a watering-pot. This is necessary to keep the soil beneath equally wet, and also to prevent earwigs and other insects from lodging in the Grass. Earwigs and woodlice hate a wet situation, and are always found in the driest places; hence, the wet state of the Grass will prevent their stopping among it. Earwigs are the worst enemies of Dahlias, feeding on the young and undeveloped petals of the flowers, as every amateur knows to his abundant vexation. Perhaps the best trap is a small flowerpot at the top of the stake, for these insects seem to have a strong propensity to ascend as high as they can for a lodging. This *attic* taste may be turned to good account by the gardener, and the pots will be found occupied every morning by the enemies he is in search of. As the movement of the pot arouses them and makes them fall, and thus escape, I put a piece of brown paper in each pot, crumpled up,

so as to retain its place when the pot is removed. In searching for them a board should be carried with you, or else when you unfold the paper they will get away, if this is done on the walk or the lawn. A lady not liking such a mode of killing as treading with the foot, may be allowed the more refined method of taking with her a china vessel, with water, into which the paper parcels may discharge their cargo. I killed many thousands last year in this way. In my neighbourhood earwigs are more than usually abundant, rendering watchfulness highly necessary.—A little diluted cow-dung may be applied once a fortnight, and all decaying flowers should be cut off. These contain earwigs, which must not be allowed to run away.

VI. THE FAILURE OF ROSES.

A friend asks advice respecting the Bourbon Queen Rose, which he says will not flower well with him. His language is so pathetic that I quite feel for him, and as he is evidently a lover of flowers, I will attempt to console him. He says, "I have lately discarded one standard (of the Bourbon Queen) thinking it was perhaps sickly, and procured in its place, last autumn, a strong healthy-looking plant, which will not grow or flower in any but the most uncomfortable diseased-looking manner." Now in this passage, our friend has indicated the probable cause of the failure he complains of, in the fact that his Bourbon Queen was transplanted

last autumn. It is indeed true that Roses will bear removing almost as well as any production, and will often flower as well and as profusely the same season as if they had not been disturbed; but this is by no means an invariable rule, as a little consideration will show. A standard Rose, carefully taken up, with all its roots, and skilfully planted in its new situation, will probably give no intimation of its being a new comer; but in most cases this attention is impossible. Nurserymen appear to think that roots are unnecessary appendages of a plant, and I have often been annoyed to find a tree deprived of its most important root-fibres. Perhaps this was the case with the standard complained of, and this will account for its present "uncomfortable" appearance. A man, otherwise healthy, would have rather a cadaverous hue if some of his toes or one of his feet were cut off, until the natural process of healing were complete.

But however well a tree might be removed and planted in the autumn, a drought in the spring will be sufficient to account for a want of vigour, unless watering and mulching have been sedulously kept up. Many gardeners are led into error by wet weather in March, and fancy that all transplanted trees are safe, and require no farther attention. But, let us ask, when is a transplanted tree independent of artificial treatment? Certainly not until its minute root-fibres, destroyed by transplanting, have been re-formed. Now the Brier, or the Rose generally, makes no fibres until the temperature is rather high, and certainly not, in most cases, until April. Transplanted Roses, therefore, which

looked well in March, and by the plumpness of their buds appeared quite safe, would be likely to recede and turn sickly during April and May. I found this the case with all I removed last autumn. They had no artificial watering, and many of them are only just beginning to put forth vigorous buds.

After all, our friend is but a tyro in Rose growing, if he expects to insure a good bloom from a single tree. He should have kept his Bourbon Queen for another season, and purchased two or three more, and then out of four plants a fine show might be relied on. I have at the present time about a dozen Bourbon Queens, on various stocks, and only two are really worth looking at. The same remark is true of the Bourbon Paul Joseph, and indeed of all the finer Roses. Some of my standard Hybrid Perpetuals present a horrid spectacle. They flowered pretty well, and then were attacked with the disease of the leaves so prevalent among Roses, and now present nothing but bare stems. Gardening would indeed be an occupation of unmingled pleasure if from a certain number of plants we could rely on a certain amount of bloom. Our mischances and enemies are innumerable; their attacks are often not to be foreseen, and while more scientific culture will lessen our disappointments, we must not hope to be entirely free from them. Whatever may have been the case once (and even that is doubtful), no garden now can be perfect. Causes in culture, in the inherent tendencies of the stock or the graft, in manures and soils, in the atmosphere, and in the temperature, come between us and our hopes, and when we expect a blooming Eden,

leave us blasting and decay. Our remedy is, to have as many various objects of affection as possible.

> "Or if you hear the stricken mother wail
> For *one* of her dear children who is dead,
> Hear not that wail alone, but also hear
> She still has children, still she is a mother."

So advises a transcendental German poet, and if our friend and others similarly situated, wish to be consoled for finding a particular Rose tree with an "uncomfortable and diseased look," they must bring around them a progeny as extensive as possible. By the way, I cut down to a plump bud the Perpetuals which suffer as above described, and expect a good autumnal bloom. This is a good time to strike cuttings of all kinds of Roses. Climbers, such as Ayrshire, for stocks, will root if planted in a shady place.

VII. CELERY.

The luxuries of the table must not be forgotten in our attention to floral beauties, and at this season a judicious gardener will be laying up a stock of care and skill in various culinary productions, to appear again with interest upon his table in autumn and winter. Among these vegetable luxuries Celery must not be forgotten now, unless we wish to remember it with vexation when, a few months hence, we find ourselves destitute of it. When a gentleman asks his friend to

come and take bread and cheese with him, and intends literally to entertain him with those humble provisions, some Celery and Radishes will raise his supper much in the estimation of the visitor. These things give a charm to the simplest banquet, and are therefore to be looked upon as highly promotive of economy; for a clever housewife will furnish as good an entertainment of bread and cheese, and a salad, as others would with more costly materials.

Horticultural shows have introduced the fashion of growing Celery to an enormous size, and if the amateur wishes to be a successful competitor, he must follow in the train of other candidates. But this custom is vicious, and ought not to be tolerated, for such gigantic specimens of vegetable growth are seldom good, and certainly never so acceptable on the table as those of moderate dimensions. A stick of Celery 4 feet long and 4 inches in diameter may astonish by the attention necessary to raise it, but few would enjoy the taste of it so much as that of a smaller one. Besides, the eatable portion is often very small, not larger, indeed, than that of a stick of diminutive proportions; all the rest is nothing worth, and consequently the energies expended on its growth are wasted. What the gardener should aim at is a succession of Celery free from a rank or earthy taste, free from toughness or stringiness, and of good colour. Most persons will be found to prefer that which is of medium size, as possessing these properties in the greatest degree.

Most gardeners sow a little seed in a hotbed frame, to secure an early crop. The plants are pricked out as

soon as possible, and when large enough are transferred to the trenches. But very early Celery is not so esteemed as the main crop, which comes into use in the late autumn and winter months; and for this purpose, a seed bed in a warm situation in the open air is all that is needed. We have had a plentiful supply of Celery from a bed about a yard square, the young seedlings being thinned out until the bed contained about 324 plants, that is, each plant having four square inches to grow in. These may be either transplanted into a nursery bed, as is commonly done, the tap-root being removed previously; or they may be at once removed to the trenches. By the latter mode time and labour are spared, and the Celery is quite as fine. Amateurs who work in their own gardens will often find that the established modes of doing things sometimes rest more on custom than reason, and may be advantageously departed from.

Celery trenches should be about twelve inches deep in ordinary soils, and at the bottom a good supply of well-rotted manure may be incorporated with the mould. Care must be taken that no coarse manures are put in, for the Celery will imbibe a taste from the matters it is grown in. Leaf-mould is perhaps preferable to any other compost, and by it the finest flavour will be secured. If the trenches are eighteen inches wide, two rows may be put in, and much space will thus be economised. We always put two rows in a trench ourselves, and find the plan as advantageous for the plants as any other, besides the saving of time in moulding up. In one garden under our observation

the plants are put in six or a dozen in breadth, and when earthed up present a compact mass. This process of moulding up must be performed gradually, a little at a time, and we have found it useful to throw in some lime or ashes at each operation to correct the ravages of worms and slugs.

VIII. WINTER GREENS AND BROCCOLIES.

There is no department of gardening demanding more attention as to time than that indicated by the title of this paper. In the midst of the beauties of summer the winter season is often forgotten. The amateur looks on his kitchen garden, fertile with Peas, Beans, Cauliflowers, and Potatoes, and is sometimes satisfied with present appearances. He forgets how soon these will all be gone, and that different crops must be the source of his dependence in the winter and spring. Hence, it often happens that the best stocked garden at this time of the year is found to be completely naked from December to May, and the careless gardener has to pay for the luxuries of that season, or to go without them.

This is the time when provision must be made for Winter Greens and Broccolies, if they are to occupy a place in your garden. You ought to have sown your own seed, and if you have done so, you will now have Greens and Broccolies pricked out—fine strong plants,

ready to be transplanted to their final abodes. As your early Peas and Potatoes are cleared off, get your strong plants in at once, taking care that the soil is well manured, and that the distances are sufficient to allow of full growth without crowding. This last particular is of the highest importance, for if Cabbages and Broccolies are allowed to grow close together, they will fall victims to frosts much sooner than those further apart. It is false economy to plant close; every production should have room for its full development, and by thus enjoying the benefit of sun and air, it will resist the cold better when it comes.

If you are unprovided with plants of your own, you must beg or buy, with all the disadvantages of having to trust to the judgment and care of others instead of your own. By mistake the amateur may have an article quite different from what he wants, and perhaps his plants will be half withered if they are brought from a distance. However, do the best you can. Go to a good nursery, and select the sorts you want. Plant as soon as you can after procuring what you intend to grow. See that every root is firmly fixed by the dibber, and water thoroughly. Everything of this kind should be finished by the first or second week in August.

As Broccolies are often cut off by the frost, it is a good plan to plant as many as possible in sheltered situations, that is, where they will have abundance of light and air, and at the same time the protection of a wall or fence from blasting winds. It is provoking to lose a crop which has occupied the ground so long, and

the experience of a bad season has made me resolve to pay more attention to this subject in future. When natural defences, or those of walls, &c., are not available, it will be worth while to apply straw hurdles and other similar appliances. A little thing is sufficient to break the wind. But this cold subject is out of place now; we may recur to it at a more favourable opportunity.

In my own practice I have found that a good stock of early York Cabbages furnishes as good a dish as need be, if care is taken always to have them young. Another good supply of Greens is furnished by the stumps of the Cabbages just now cut, and the prolific character of these decapitated subjects makes them highly valuable. After a bed of Cabbages has been consumed, let the stumps be trimmed up, and the fork be used between the rows. By the winter your supply will be *quantum suff.*, and very often these stumps will furnish your table when no other Greens are to be had.

IX. PROPAGATION OF PLANTS FOR NEXT SEASON.

The summer garden is now in its glory, and amply repays its possessor for all his expense, labour, and care. Verbenas, Petunias, and other creeping plants, nearly cover the beds; Pelargoniums, Salvias, and Fuchsias have assumed their deep and rich tints, and Dahlias

rule over the whole in profuse magnificence. The amateur begins to take breath for a while, and basks in the paradise himself has created. Weeds are now less luxuriant, and lawns appear to repose in their rich green, sometimes, indeed, too much embrowned by the summer suns. From the present time till the middle of September, this beauty will rather increase than diminish, and the labour demanded will be less than at earlier seasons of the year.

But we must intrude upon this state of repose by the note of warning, and remind the amateur, that if he wishes a repetition of the scene before him next year, he must propagate at once. Many plants should now be rooting, such as Wallflowers, Pinks, and Carnations; biennials should be sown, and Roses budded. But it is to the propagation of exotic plants, requiring the management of a frame, that I now call attention, and would advise the following mode of treatment:— First, let a gentle hot-bed be made. If you have a spent Melon or Cucumber bed, that will do, if the old dung is mixed, to the depth of a foot, with leaves and mowings of Grass, as formerly described. You may either insert your cuttings in the mould in the frame, or in pots. The latter plan is preferable on many accounts; the cuttings strike easily against the sides of the pots, and they can be moved more readily. Indeed many things will be best left together in the striking pots until the spring, and consequently they should be grown in a vehicle which can easily be removed. The soil should be fine, yet porous, having a good portion of sand mixed with it.

As a general rule, the cuttings should be wood of this year's growth, having consistency and strength at the part to be inserted in the ground. Pelargoniums strike without any difficulty, and will scarcely fail under the most ordinary management; other plants are more difficult, yielding more easily to damp, wind, &c. Let every cutting be taken off at a joint, and inserted firmly into the soil. If the soil is moist, water need not be applied, except in small portions. It often happens that an excess of water causes a cutting to perish. Skill is shown in keeping the leaves from drooping; for if they do so to any extent they seldom recover their crispness; and every gardener knows that a cutting with half-withered leaves has little chance. Place the pots in the frame as soon as they are filled, and keep them close for a few hours. Attentively watch them; pick off dead leaves and maintain a gentle heat. By treatment of this kind, and by remembering the different habits of the woody and the succulent varieties, you will accomplish your purpose, and be independent of nurseryman and friends another year. Do not be afraid of having too many; but cut wherever you can without injuring the beauty of your beds. Some are sure to die, and by misfortune many may. Provide an abundance, and then you will be able to do to others as you are often glad they should do to you—give some away.

In looking over the propagating department of a very large garden, I was surprised to find that, under the hot suns of May, thousands of cuttings just put in did not flag in the least, although they had no shade

but the glass. The gardener informed me that this was accomplished by keeping the plants a sufficient distance from the glass. By this simple arrangement the light becomes diffused before it reaches the plants; whereas, if the glass were too near, they would require shading, or be parched up. With these hints, added to his own experience and observation, it is hoped the reader will secure for himself another season of as great beauty and abundance as I presume he is enjoying at the present time.

X. CUT FLOWERS.

A source of very great pleasure is derived by the genuine worshipper of Flora, from cut flowers, arranged according to taste and circumstances in vases and other appropriate vessels in sitting rooms. Possessors of gardens differ very much in reference to this mode of employing their stock; some not liking to take anything from the garden to the house, but allowing every beautiful production to wither on its stem; others will freely give away flowers in bloom, and throw an air of elegance and refinement over their own dwellings by the use of these ornaments. As far as my own observation has extended, the former penurious class consists of those who love a garden more for ostentation than from a perception of its real charms; while the latter garland-weaving set are the true devotees of the many-coloured goddess.

Ladies! be bountiful in your gifts of such common

yet acceptable and expensive presents as flowers, and do not consider your garden robbed when you pluck a Rose for a friend, remembering that if left on the tree it will soon wither, but that made an offering of respect or kindness, it will accomplish an intellectual and pleasing mission. Flowers are innocent links uniting together those who are separated, and perpetuating emotions which personal intercourse has awakened. You remember the lines—

I never cast a flower away,
The gift of one who cared for me—
A little flower, a faded flower—
But it was done reluctantly.

But perhaps we are getting too specifically sentimental for the very general object before us, and therefore merely suggest that flowers are best plucked, if by being gathered others are made happy, and the parent plant benefited. Those who have gardens should have pity on those who have not, and prefer seeing them worn on the bosom of a friend, or become the objects of worship in a wine glass in a sitting room, to their "wasting their sweetness on the desert air." In this sense we cannot sympathize with Lyte, who says

Oh spare my flower, my gentle flower,
The slender creature of a day!
Let it bloom out its little hour,
And pass away.

Later in the year we are kept in tantalising suspense by the frosts which are daily expected, but which sometimes delay their visits longer than is anticipated. The garden is gay with flowers, and yet there is reason to

apprehend that a few days will throw over the whole an air of decay and sadness. It has been my custom for several years to prolong the blooming time by gathering the best flowers when the approach of a frost was to be expected, so that while all out of doors is destroyed, there may be a week's pleasantness within. Some flowers are better adapted for this purpose than others, from their greater durability. Scarlet Pelargoniums are admirable for the length of time they will look gay after they are separated from the plant. I have discovered lately that the Nasturtium tribe suffer very little when cut and removed to water in a room. I am now looking on a splendid bouquet formed of a dark Nasturtium and a Canariensis twined together in a vase. When first gathered, it was apprehended that the apparently fragile flowers and leaves would soon droop and die; but after ten days the foliage is crisp, and fresh flowers have bloomed. This paper is written principally to make our readers aware of this fact. Frosts will immediately and completely destroy these plants when it touches them, and therefore, by putting some shoots covered with flower buds in water, you may prolong a very pretty bouquet for along time. Probably, with careful management, these and other plants may be made to bloom for some weeks. At all events any respite from the dull barrenness of winter will be hailed by the amateur, especially if the absence of a greenhouse renders his stock of flowers small.

Cut flowers require to be carefully attended to, to secure the longest duration of their blooms. The water should be changed every day, and the cut ends

occasionally must be cut again, as decomposition soon begins there, and if allowed to proceed will soon destroy the whole section. Light must be regulated by circumstances. In some cases too much of it will hasten decay.

XI. PROPAGATING ROSES BY CUTTINGS.

This is the best season for increasing this beautiful tribe of flowers, both by budding, layering, and striking cuttings. Of the latter mode we propose now to treat, and amateurs who give their attention to the pursuit will be interested in the work itself, and repaid abundantly for their pains. All kinds of Roses may be increased in this manner, although some varieties form roots with much greater facility than others. A common hand-glass in the open ground will be attended with some success, but we wish to prescribe a more scientific and therefore more sure method of proceeding. At the same time the principles of the method we are about to recommend may be applied in various circumstances, according to the inclination or the available means of the reader.

Two small frames will be needed, which should be scrupulously clean and well glazed. The point of cleanliness is too little thought of here, but in France much stress is laid upon it, and it is certain that dirt and bad smells engender diseases in many plants. One frame is to hold the cuttings as soon as they are made; the

other is to receive them in two or three weeks, when they have formed a callus, and are ready to emit their roots. The first is a cold frame, and may stand on the ground, or on an exhausted Melon or Cucumber bed, according to convenience, care being taken to exclude the air as much as possible. In fact, this frame is to stand in the place of a hand-glass, and should only a few cuttings be required, a hand-glass will supply its place. A sufficient number of pots, or seed pans, are next to be filled with soil, composed of equal parts of white sand, leaf mould, and turfy loam. Around these pots the cuttings are to be inserted, and so firmly fixed that they do not shake about in their holes, the close application of the soil to the cut part being indispensable to success. The cuttings must be of this year's growth, taken off with a portion of the juncture with the wood of the old stem, commonly called a heel. About three or four joints make a good cutting, and about an inch should be inserted in the soil. Give a gentle watering, and place each pot as it is filled in the cold frame. The whole must be kept close, and shaded from the sun. A calico covering to the frame is adopted by us, but perhaps if the glass was dulled with putty gently dabbed all over it, it would answer the purpose better, the object not being to exclude light, but only the direct solar rays. The frame must be examined daily, and all leaves which fall removed, or they will generate mildew; and a moderate moisture must be maintained.

In about three weeks the cuttings will have formed a callus, that is, a collection of elaborated sap will be

perceptible at the cut part, and it is from this the young roots will protrude. This result will take place if the pots are allowed to remain where they are, but the operation will be slow, and therefore the second frame will now be required to complete the process. This should be placed on a gentle hot-bed, and when ready, the pots may be removed into it. More light may now be admitted, and roots will be quickly formed, so that by August the young plants will be fit for potting off. By proper management the greater part of the shoots put in will be rooted, but if only half the number succeed, the labour will not have been thrown away.

XII. ON FILLING VACANCIES IN FLOWER BORDERS.

"At certain times of the year," says a gardening friend, "there is a great vacancy observable in many gardens, particularly those belonging to persons of limited or moderate means. The Pinks and Verbenas are just coming into bloom, or my garden would have a very naked appearance. I grow standard Roses, which have produced a good sprinkling of bloom, but something is required for the borders, &c., not only to keep up a succession of flowers, but also to fill up the void. Will you have the kindness to name a few good herbaceous plants suitable for small gardens, at a moderate price, that bloom at different seasons?"

In reply to this and similar inquiries, we observe,

that herbaceous plants will not be likely to answer the purpose. They generally bloom early, and are from their size unfit for small gardens, unless very sparingly used. Looking round my own garden, I find the varieties of Pæony, Spiderwort, Veronicas, Perennial Lupins, Campanulas, &c., are mostly gone off, and will present a shabby appearance for a long time to come. They do very well in a large space, to fill up distant spots, the edges of shrubberies, and similar situations, where general effect rather than near inspection is consulted, but in beds with Roses they are out of place, and should not be used. What few herbaceous plants I have, I am not satisfied with, because they frequently flower but a short time, and yet their foliage takes up much room, and requires a long time to perfect it. I would advise the inquirer to dismiss this class of flowers altogether, and cultivate others more compact in their habits, and more durable in their bloom.

In July we expect the flower-garden to look as splendid as at any season, at the close of the month at all events. The large class of tender plants, trained for bedding out, begin now to be established in their new quarters, and to bloom profusely. A small stock of these should be in reserve in every well managed garden, that when a vacancy occurs they may be introduced. For instance, the common Pæony is found in many borders, and certainly looks gay in May and June, but now it is destitute of flowers, and a patch of green covering a square yard is not desirable during the finest part of the season. It will not do to cut down the foliage if the plant is to be grown well, and

the remedy is, to remove a few of the oldest branches, and tie up the rest. A Scarlet Pelargonium, or a China Rose, or a Pentstemon may then be planted in front of the Pæony, and prevent the bald appearance of which so many complain. The same may be done with Crown Imperials, Jonquils, &c., which drop their foliage at this time. Let the withered leaves be removed, and a Verbena or Petunia, grown strong in a pot, may be placed in the exact spot. Of course anything of this kind may be procured in nurseries, and at about 6d. each, good plants can be purchased, twenty or thirty of which will give to a garden a very different aspect from that complained of. Nothing will beat the Scarlet Pelargonium for effect in the cases now under consideration; its hardy habit as to soil, its oriental-looking foliage, and its vivid flowers, give it a preference over many other beautiful things, which perhaps require a particular situation, and soon lose their charm.

The grand obstacle in the way of a well-filled flower garden is the want of foresight on the part of its owner. A gardener should have the wants of his borders at every season present to his mind at any time. He should know in January what he will require all through the year; more than this, he should know *now* what he will want next summer, that he may, by striking and hardening a sufficient number of plants, be prepared to fill his flower beds, and supply vacancies when they occur.

August.

"Half in a blush of clustering roses lost,
Dew-dropping coolness to the shade retires;
There, on the verdant turf, or flowery bed,
By gelid founts and careless rills to muse;
While tyrant heat, dispreading through the sky,
With rapid sway, his burning influence darts
On man, and beast, and herb, and tepid stream.—
Who can unpitying see the flowery race,
Shed by the morn, their new-flushed bloom resign,
Before the parching beam?"

Thomson.

The Calendar.

The Flower Garden.—The heat and general dryness of this month will demand the watchfulness of the gardener. For the general productions of nature, the want of rain is compensated by heavy dews, but smaller things in pots and propagating beds will require attention as to watering. Dahlias must be kept moist, and a little liquid manure will improve the bloom. Hardy annuals for spring bloom should now be sown; also biennials, as Holyhocks, the tribes of Dianthus, &c. Chrysanthemums may be now potted off in small pots, to be shifted as the roots demand the operation. Get ready the greenhouse for its autumnal stock, by glazing, painting, and general cleaning, and let all tender exotics be safely housed before September. Pre-

paration must now be made for the flower-beds of next year, by extensive propagation.

Kitchen Garden.—Sow various kinds of Cabbages for the spring; and Lettuces about the middle of the month. Earth up Celery a little at a time. Make new beds of Strawberries as the young plants become fitted for removal. Watch insects—take wasps' nests, and guard fruit trees on walls from their attacks. Dig between the rows of Broccoli, &c., and earth up the plants.

I. ON BUDDING ROSES—WHEN NECESSARY.

As all floriculturists love Roses, it is a work of supererogation to recommend them to the attention of amateurs. How imperfect would their gardens, however small, be without them! and how anxious they all are to secure varieties of this beautiful flower! But if nothing need be said to make the culture of Roses a common and favourite pursuit, every contribution in aid of its successful and perfect development must be regarded with interest. The propagation and growth of the Rose have engaged the efforts of the highest floricultural skill, and the methods of procedure have been understood by comparatively few. In a publication like this, novices expect to be assisted in their pursuits, and it is for them, and not for the more advanced, that the following hints are thrown out. Much has already been written, in separate works, on Rose culture, and the volume of collected papers, called "The Tree Rose,"

almost exhausts the subject of budding. All that will now be attempted is, to assist the amateur who may be anxious to perform the operation of budding for himself—a task the writer undertakes with the more confidence, as he has been tolerably successful in this department of gardening.

The objects contemplated by budding Roses should be well understood before the work is begun. If it is intended only to make the performance subservient to the production of standards, then I would suggest the inquiry, whether in the given locality standards are desirable or not. A blind passion for a Rose tree with a tall stem and a heavy head has been very prevalent of late years, and has often been indulged without regard to good taste or appropriateness. Now it appears to the writer that in itself a standard Rose is not so elegant as a common well-trained bush, or one grown in the pillar fashion. A leafless stem, requiring a strong stake for its support, as all standard Roses do, has certainly nothing of beauty or ornament in it; while a Rose growing on its own root, and trained pyramidally to the height of five or six feet, is a magnificent object when in bloom. We commonly see in small gardens a lanky Brier or two springing up from a lawn, and making us wonder what such wild, unsightly things can do there, till, on inquiry, we are informed that the proprietor intends budding on them at the proper season. Now, in such cases, there are ten chances to one that the budding does not succeed; if it succeeds, it will take two or three years to form a head; and when a head of first-rate character is produced, the whole affair

does not embellish the garden half as much as a pillar Rose would have done, in some cases, in the course of one season.

If the rule of literary criticism has any truth in it,—

"In every work regard the writer's end,"

the same principle fully applies to floriculture, and especially in the instance now under consideration. What is the end or purpose to be answered by standard Roses? I reply, they are only useful or desirable when a display is required above the heads of more lowly plants, and in such cases they may be introduced with fine effect. An avenue of standard Roses may be made a fine object, when there is a good undergrowth of smaller productions; or single standards may be introduced with advantage when space is limited, since they allow of flowers being grown underneath. But even when standards are clearly desirable, the amateur should remember they ought to be placed in a finished state in the spots they are intended to occupy. Budding is the work of a nursery, and the Briers should not be seen until the finer production gives a softened character to their wildness. It will be proper, therefore, to consider which course is to be preferred—the purchasing a few standard Roses at once, so that their beauty may adorn the garden the first season; or the dilatory and uncertain process of budding for one's self.

So much in reference to standards. But budding has other objects, and higher claims upon our notice. It confers a hardiness upon Roses otherwise tender, so that many which would not endure our winters on their own roots, become acclimatised, when receiving into

their structure the more vigorous juices of the Brier. Then, a more rapid attainment of the flowering state is in this way secured. For example, a friend once gave me a small cutting of the beautiful Bourbon Rose, Paul Joseph. I had only a choice of two courses to pursue with regard to it; one was, to endeavour to make it produce roots as a cutting, the other to bud it upon a stock. Had I taken the first course, it probably would have perished, as cuttings of fine Roses demand much skill for successful striking; or if it had lived, it would scarcely have been strong enough to produce flowers in twelve months. I adopted the second course, and inserted the only two buds I had into a climbing Rose which I cut down for the purpose. In the following June, these buds were half a yard high, have produced flowers, and supplied me with buds enough to insert in about a dozen Briers. Expedition and certainty are, therefore, attained by budding, and on these accounts the art is highly important to all amateur gardeners.

II. ON BUDDING ROSES, STOCKS, AND MODE OF OPERATION.

The desirableness of budding being decided upon, the selection of proper stocks is the next subject for consideration. Every gardener should keep a small stock of Briers in some retired place, ready for use when buds of valuable plants come into his possession; and

these, of course, require winter treatment, which need not now be explained. If you have Briers, examine them immediately, and see how many are in a proper state for budding. A long drought will be very favourable, as it will check the growth of young wood, and harden prematurely that which was produced. Unless the bark rises quite freely, do not attempt the operation. It has no chance of succeeding if a succulent juicy state is not manifest on cutting the stem, and this will only occur in young wood. New shoots are now being produced, which will be fit for working in about a fortnight, and I would recommend that the Briers be cut down to these shoots, and all the hardened branches be removed. An opportunity will thus be afforded for budding before August is closed, and although rather too late, success may yet be expected.

But if you have no Briers, budding may be advantageously performed on other stocks. Boursault Roses, Climbers, such as Adelaide d'Orleans, and many others of free growth, generally throw up fine shoots from the root; and if all the old wood is cut away, these may be budded on with every prospect of success. I have found more certainty attending the operation with this class of stocks than any others, and where you have common Climbers, you may easily replace them with good Roses in this way. Inferior hybrid Chinas also make good stocks, such as Celine for instance; and as these throw up young wood very freely, the gardener will easily find depositaries for his buds if he has anything of a collection. I budded Paul Joseph on Celine in this way a few weeks back, and the buds have shot

half an inch. There is another economic mode of securing stocks I will mention again, having found it of great service myself. Your Briers which have been budded on will often throw up suckers at a little distance from the parent stem, so that they may be cut off in the winter with a portion of root. Bud on these, and carefully remove them at the proper season. As, however, trees well established in the ground throw up these suckers very luxuriantly, they must be watched, and all new shoots carefully stopped after the budding is performed. If this is neglected, the strength of the shoot will run away with the juices necessary for the bud, and it will perish.

A damp, dull day is preferable for budding, but not necessary, for great numbers have succeeded with me when executed on the hottest days. But precautions must be observed to counteract the effects of heat and drought. Bud on the north side if possible, and seek for the shade of some neighbouring foliage. Even the ends of the bass with which the bud is tied in, may be made to hang over it so as to save it from the direct beams of the sun. In all these matters, a common-sense view of the affair in hand must be taken, and this will lead to the adoption of the best methods for securing the object. We do not transplant in hot sultry weather if it can be avoided; but if it is necessary at such seasons to remove anything, we shade and water more carefully. Now, if it is remembered that in budding, a wound is inflicted, and that the part inserted is very thin and delicate, it will be evident that success cannot be expected in the absence

of thoughtfulness, similar to that which transplanting requires.

It is often affirmed that anybody may bud; and so anybody may cut a bud from one tree and insert it in another; but anybody cannot make the inserted bud to grow. The operation is purely mechanical, and therefore a mechanical aptitude is necessary to perform it well. Perhaps it would be more correct to call it a surgical operation, since it requires the nicety of touch and perception of mechanical adjustments which surgery demands; like that, too, it is an operation performed on a living subject. Many clever people could never bud well, from an inability to perform any nice manipulation. Are you able to bind up a cut finger tenderly, neatly, and securely? Then you can bud, and may proceed with hopes of success. Steadiness and patience are demanded here, and temporary inconvenience caused by stooping, and occasional scratches, must be thought lightly of.

Much has been written respecting budding-knives, but I think most practised budders will agree that this is a matter of less importance than at first sight appears, as a little use of almost any appropriate instrument will make us think it the best. I have long used a surgeon's lancet, and defy any one to discover a more efficient tool. The steel of lancets is sure to be good. I have used mine for three seasons without sharpening, and it is as effective as ever. The pieces of tortoise-shell composing the handle do admirably for opening the sides of the bark. I am not advising others to get lancets, for, in the hands of some persons, they might

not answer so well as I have found mine to do. I only mention the circumstance as illustrative of my statement above.

III. ON BUDDING ROSES—MISCELLANEOUS DIRECTIONS.

As the season is advancing, it will be necessary to dispatch at once all that has to be said on this subject. As the form of the segment containing the bud to be inserted, and of the incision made in the stock to receive it, have often been figured in works on gardening, the reader is referred to those illustrations to teach him the mode of proceeding. It is recommended, however, to the uninitiated, to see the operation performed if possible, for five minutes' practical demonstration will convey more real instruction than hours of reading. As success depends more on an acquaintance with little minutiæ than on a knowledge of the broad features of the operation, I shall proceed to enumerate those particulars which experience has taught me the value of.

The incision in the bark is often made too long. As a principle, it must be remembered that a living structure should be wounded as little as possible, as the larger the wound is, the greater will be the effort of nature requisite to heal it. The transverse cut should be made first, and must vary in breadth according to the size of the bud to be inserted. The vertical incision may be about three quarters of an inch. Besides the reason

indicated above for being sparing in the use of the knife, there is another equally important; I mean, that the inserted bud and its accompanying section of bark will fit closer than where the cuts in the stock are so wide and long. I have seen some budders expose so much of the juicy substance beneath the bark, that it has been difficult to keep the bud in its place; whereas, if the fit is tight, the bud adheres of itself, its denuded parts are brought into close contact with the stem, and a juncture is rapidly formed. If the rule respecting short incisions is admitted, it must apply also to the bud. I consider it bad for the bark connected with the bud ever to project beyond, or lap over the transverse cut; for if it does so, it will be necessary to cut it off, and in doing this there is a risk of still further lacerating the stock. I always cut out a bud with about three-quarters of an inch of bark adhering to it, and make the whole sink below the tranverse cut. I am persuaded this plan has its advantages, for the top of the bark adhering to the bud is in this way applied as closely to the stem as the bottom of it is.

Preparing the bud is an important matter, as the success of the operation depends more on this than on any other particular. A clumsy cut may be overcome, and bad tying-up will yield to the formative power of vegetable life; but if the embryo branch is not rightly managed, its embryo state will never be passed. At one time most of my buds failed; now failure is an exception to the rule. I attribute this to the way the buds are prepared for insertion. If the branch from which they are cut is very succulent, I cut a very thin

slice, and insert the whole, without attempting to extract the woody part, which, in such instances, is scarcely formed. If the branch is older, and contains well-formed wood, I always allow a portion of it to remain. All doubt as to whether the bud is perfect is thus removed, which is not always the case when the woody fibre is quite extracted. I believe that in many cases the base of the bud is too depressed to allow a close junction with the stock, and it thus perishes; while, by leaving a portion of the wood, this catastrophe is guarded against.

Fine bass is preferable to anything else for tying in the bud. That which is clear in its texture, and does not easily break, is the best, and it should be moistened with the mouth before it is applied. I generally use a piece about a third of an inch wide, and 14 inches long, which I find enough for ordinary cases; it is difficult to conceive what end is contemplated by those who wrap the infant Rose-bud in such heavy swaddling bands. At the same time, put sufficient around the object of your care, above and below; let it be tightly and regularly applied, taking care not to interfere with the projecting bud. I once employed a clever gardener to bud a number of Briers, and he chose lamb's wool for his work, which was expensive, and, as far as I could discover, in no way superior to matting. At all events, few of the buds succeeded, partly owing to the lateness of the season when they were inserted; and during the winter the Briers had a discouraging appearance, with their long winding-sheets of black lamb's wool inclosing defeat and death. I was compelled to

apply to them the old proverb, "*Illos non flocci æstimo;*" "I think them not worth the wool."

A very few days will show whether the operation has succeeded; for, if it has not, the bud will quickly wither. When you have reason to think a juncture is formed, loosen the bandage a little, to allow the sap to circulate more freely. A portion of the Brier must be left until the bud begins to grow, or to become plumper, when it may be cut down to within two or three eyes. When the bud has become a shoot, the whole of the stock may be cut down close to it. I hope the amateur will have this pleasing duty to perform very frequently, and that he will be careful, while cutting off the superfluous Brier, not to knock off the young branch, as is sometimes done.

IV. THE GREENHOUSE.

Although these papers are not intended for the proprietors of large gardens, who keep professional gardeners, and consequently do not treat generally of stove and greenhouse management, yet, as many amateurs have a greenhouse which they conduct themselves, a few words of advice may not be thrown away. The writer often sees a greenhouse sadly neglected from the want of correct information on the part of the owner; the plants are overgrown and covered with mildew, untidiness reigns around, and the structure, which, pro-

perly managed, would be an ornament to the garden, is almost a blemish to it. At this season every preparation should be made for the months which must intervene before the house can be emptied. What has to be done in the way of cleaning and general arrangement should be done at once, and the following observations, if attended to, will help to secure for the amateur all the benefit the greenhouse is calculated to give.

If not done before, the house should receive a thorough cleaning, and for this purpose the plants must be turned out, or if the weather will not permit this, they may be crowded together at one end, while the other receives the requisite purification. The glass, paint, and floor should be scrupulously submitted to a woman competent to do the thing in a business-like way. Every corner should be scraped out, that all insects and their eggs may be destroyed. As pots acquire growths of fungous productions, an application of soap and water will be of service to them. This cleanliness will be found of great value, and will promote the well-being of the plants in a high degree during the winter months, when the dampness of the atmosphere is more to be dreaded than frost. Mildew, mouldiness, *et hoc genus omne*, delight in dirty places, to say nothing of the thousands of insects which the smallest greenhouse can harbour in its corners and crevices.

The next process is the arrangement of plants for the winter, a matter requiring a measure of judicious thoughtfulness. The plants of an amateur may be classed into two kinds, those which are required to

grow, and those for which a state of rest is more desirable. The former must have the best of the light and warmth, while the latter may be placed in the situations having the least of these advantages. It is presumed that artificial heat is not to be applied, except for the purpose of excluding frost; for if the house is kept too warm, no plants can be put into shady situations with impunity. The stock for bedding out next spring should be kept as dormant as possible, and in a house without a fire this may be done by putting the pots on the floor, and giving no more water than sufficient to keep the foliage from withering. Plants to bloom during the winter, or early in spring—in fact, all which are required to grow now—should be arranged as near the light as possible. In the arrangement of plants in a house, care must be taken not to allow the foliage to become crowded; and to prevent this, productions of low stature should be placed between those which are taller. By this kind of sorting, the space will be economised, and a far larger number of pots got in and kept healthy. It should have been stated above, that it is indispensable that the roof should be waterproof, for the drip will seriously incommode you, if it is allowed to come in.

Let it be seriously impressed upon the possessor of a greenhouse for general purposes to be as liberal as possible in the admission of air on every practicable occasion. No one thing is so inimical to the health of plants as the want of fresh air. A free movement among the leaves, occasioned by the wind, is always to be desired, and there are no days, except when frost

exists, when this may not be gained. It is surprising what a dread exists of fresh air among a large class of persons. They exclude it from their bed-rooms, and on the same principle shut it out from their greenhouses, with the same result in both cases. To drive out damp or to prevent its entrance, no plan is so effectual as that now recommended.

Ordinary frosts may be resisted without the application of fire-heat, if care is taken to cover up the house with some material which is a non-conductor of heat. If in any case a sharper frost than was anticipated should occur in the night, leave on your covering until the sun has risen some time, or until you have ascertained that any frozen foliage is thawed. It is astonishing how much a tender plant will stand of cold, if light, and especially solar rays, are excluded until the thawing is over. In all cases the object is not to give heat but to exclude frost, and to this end the skill and attention of the amateur should be directed.

V. RESULTS OF EXPERIENCE.

In the present state of the garden in general, while the foliage remains unmoved, and flowers are still brilliant, every amateur should take a survey of his domain, whether extensive or limited, for purposes of future alteration and improvement. Time will be well employed in noting matters which admit of a better arrangement than they have yet received, and it is

highly important that the various effects produced by the position and filling up of flower beds, and the allocation of trees and shrubs, should be marked. In relation, for instance, to close planting, this is the time to observe its injurious consequences, and to determine to correct them. In winter, when the branches are destitute of their umbrageous coverings, there appears to be space enough for each tree and shrub to revel in; but in the autumn the conviction made by a survey is very different. Some plants touch each other, others are becoming intertwined, others are fast hastening to incommode their neighbours. Now, although it would have been wiser to have planted at a proper distance at first, the quicker the evil is remedied the better it will be. Mark those trees which are thus threatened with shortness of house-room, and let them be moved with care, so that they may suffer as little as possible.

If the cropping of a kitchen garden is observed, and the arrangements which have existed during the year in the plantations of Gooseberries, Currants, Raspberries, and Strawberries, it will be found that the best vegetables and finest fruit have been secured where the most liberal space has been allowed for sun and air. A wet season teaches capital lessons on this subject, for it is then seen how shade and contracted quarters injure vegetation and deprive fruits of their proper flavour. One of the last lessons learned by the gardener is, that if we are generous to Nature, she will be generous to us, but that if we restrict her she is always amply revenged. Make your observations now, and this fact will be impressed upon your memory. Crops of Cab-

bages or Broccolies, rows of Peas and Beans, &c., which have been crowded together, are now the dens of mildew and insects, while those provided with plenty of room have been kept in health by sweet air and bright suns. Determine which rows of Raspberries shall be rooted up, which Strawberry plants will be better away, and, having formed the resolution, do not forget to execute it when the desolations of winter have contracted the productions, and seem to give them space enough.

The effects produced by the various colours of flowers in combination and in contrast, may now be advantageously recorded, either for imitation or alteration next year. For example, I have in my garden some six-year-old scarlet Geraniums, which I annually plant in various situations, generally surrounding them with flowers of a more shrubby growth, and of a contrasted colour. This year I planted round these tall stems some seedlings of a minor Convolvulus, of a much darker blue than the common variety, and as its growth has been very rampant, the plants have been twined with the branches of the Geraniums. The effect of the brilliant blues and deep scarlets, and the light and dark greens of the foliage, has been very striking, and I shall endeavour to adopt the same arrangement next year. So in reference to other things. Some combinations I have found to be anything but graceful, while others are worthy of being perpetuated. These various results will fade from the memory unless now distinctly noticed, and the benefit of experience in this manner will be lost.

Nothing teaches like Nature: and the amateur may receive fine lessons on taste by watching and criticising her exquisite painting. Observe the hedgerows at various seasons, and you will learn what different new arrangements your parterres admit of. Bend your attention to the lights and shades produced by the ever-varying combinations of the fields and the woods, and you may transfer some beauties to your shrubberies. The eye and the heart in this way will find plenty to do, and you will become not only an admirer but also a coadjutor of Flora, the tasteful observer of whose footsteps will often be able to heighten the beauty of his mistress by a chaplet of his own creation.

VI. ON PREPARING FOR NEXT YEAR'S FLOWER GARDEN.

In treating of the best mode of adorning the garden in the summer months, we have often impressed upon the amateur the necessity of getting his stock of plants ready the year before. Unless this is done you must either beg in the spring, to the probable annoyance of your friends, or incur considerable expense at the nursery. Between these two difficulties, the fear of begging and the fear of spending, your garden is likely to come short, and the most provident and satisfactory mode is to lay up a store for yourself. A friend of mine has a garden which always looks gay in summer, yet he never troubles himself about the preservation of a single thing.

He goes every year to a gardening friend, and thus supplies his own lack of forethought. If people knew what a bore they are considered when they ask industrious parties to supply the defects of their own management, they would rather make an effort on their own behalf than thus lay their burdens upon others. Now is the time to begin the course of independence, which, if followed up, will give you plants enough and to spare next spring.

First, let your attention be given to those plants which may be propagated in the open ground, which form a more numerous class than is generally imagined. If you have rather a shady border of fine sandy soil, you may strike in it Pansies, Pelargoniums, Scarlet ditto, Verbenas, Fuchsias, and Roses, with many others. I found the other day some slips of Fuchsias inserted in a basket of sand to form a bouquet in a sitting-room, had formed a callus, and would soon have projected roots. In cottage windows also, you may see the common practice successfully pursued of putting a slip of anything into the pot of the parent plant. Horticulture admits of the most delicate and scientific manipulations, but it also yields its treasures in some degree to the humblest management. Only a few principles require to be remembered to ensure success. The slip should be of well-ripened wood of the present year, taken off at a joint, as most plants emit roots only there; it must be firmly fixed in the soil, that the cut part may be in close contact with it; and a moderate degree of moisture and shade must be provided, until the cutting is established. There will be failures in this method,

more or less according to circumstances, but as slips are plentiful in a well supplied garden, this is of no importance. Put in a good stock at once, and when the cuttings are rooted pot them off two or three in a small pot, to be kept during the winter. Three young scarlet Pelargoniums or Verbenas will do well in a small sixty pot; that is one about four inches deep and three inches in diameter.

Many things may be easily propagated by suckers—that is, young shoots springing from the stem under ground, and having a portion of root attached; these may be removed and potted at once. Verbenas emit roots at every joint when allowed to trail upon the ground; these rooted portions may be taken up, and when potted will make fine plants. By looking round the garden in time, much may be done in this way, and a stock secured without labour or skill. But if the amateur desires to do the business more quickly, and also to propagate other kinds of plants, requiring artificial heat, he must have recourse to a frame, as directed on former occasions. A very gentle heat, generated by leaves, is quite sufficient, and the cuttings may be put thickly into pots, and plunged in the soil of the bed. A common two-light frame will be sufficient for many hundreds of plants. A calculation should be made as to the number required for bedding out next year, and about double the quantity needed may be propagated. During the winter, if greenhouses and proper pits are not possessed, many will necessarily be lost, and a reserve should be allowed to cover such mischances. The best mode of preserving the collections secured, during the

winter months, has been treated of in other places, and will be alluded to again at the right season. If you wish to be an independent man next year, do not lose a week. The seasonal heat is daily becoming less, and shorter days allow the solar light less influence. Begin at once, and a day will be found amply sufficient to commit to the vegetative power of Nature all that a large garden can require.

VII. CULTURE OF THE CHRYSANTHEMUM.

This justly admired flower belongs to the large natural order of the Asteraceæ, or Composites—the latter term indicating the fact, unknown to many, that what is called the flower is a compound of many florets, collected thickly on a common receptacle. There are many varieties, peculiar to various regions, but that which is so much cultivated in our gardens, is a native of China. It is valuable on account of its intrinsic beauty, the way in which it sports into new sorts when raised from seeds, and its tendency to bloom late in the season, when fine flowers are comparatively rare. Any one who walks through the suburbs of London in November and December, is attracted by the gaiety given to the gardens in those otherwise dreary months by the extensive patronage of the Chrysanthemum. The refreshing green of its foliage, and the lively colours of its flowers, produce an effect truly pleasing. But it is in the greenhouse or conservatory that this plant is seen

in all its glory during the winter, and no one who has visited a good collection fails to be delighted with it. We shall endeavour to furnish some plain directions for its cultivation, both in the open air and in pots.

The peculiarity of the Chrysanthemum is its late blooming, and this must be considered by the grower, since all the details of cultivation are regulated by this fact. It may be propagated indefinitely by divisions of the roots, and the common varieties in gardens are treated in this way. But the disadvantage of this mode is, that the plants grow to an unwieldy size before the autumn, the lower stems become naked, and a head of bloom is obtained at the top of an unsightly mass of leafless stalks. The best mode of increase is by cuttings taken from the parent plants, about the beginning of May. The healthiest shoots should be preferred, the tops of which are to be cut off at a joint, from four to six inches from the extremity. Remove the leaves from the two last joints, and plant the cuttings in sandy soil close to a south wall, under a hand-glass. They will soon become rooted, and may then be removed to their destination. They grow well anywhere, but the precarious season at which they flower should regulate the choice of situation. We have planted Chrysanthemums in the open garden, and have occasionally, in Bedfordshire, secured a fine show of bloom, but more frequently early frosts have rendered them useless. The protection of walls should therefore be given, to which the shoots may be nailed; or, if planted in a border, covered hurdles may be put over them at night, and removed when the weather allows in the morning.

A very fine display may be secured in this manner, for the plants do not require heat, but only protection from severe cold.

The natural growth of the Chrysanthemum is by an extension of its first shoots, which attain to a great height in some cases. If allowed to follow this natural bent, the plants will be awkwardly tall, with only a few flowers at the extremities. This evil is avoided by nipping off the ends of the shoots, and upon the judicious performance of this operation depends our securing bushy plants with an abundance of bloom from the top to the bottom. When the cutting is rooted, the top should be pinched off, and shoots will be produced from the sides. When about four inches long, each of these should be subjected to the same treatment, and the result will be a great number of heads instead of one, and a compact shrub instead of an awkward lanky specimen. When grown in pots, the cultivator has a mastery over the plants, as he can retard their growth if necessary, and therefore, as a rule, the above system of stopping may be adhered to. But the case is different in the open air, for rich soil and much moisture may render further stopping necessary. If therefore a strong growth indicates the necessity of such treatment, the stopping may be continued till the last week in August in the open air, but not longer, or there will not be time for the full development of flower-buds. When grown in pots, the case is different, as the shelter of a conservatory will allow of more time for the completion of the growth.

In pot culture, the plants thrive well in a mixture

of turfy loam, and one-third rotten manure. They must be shifted as roots are formed into larger pots, until they are left to flower in those which are about nine inches in diameter at the rim. The *principle* to be observed is, not to allow the plants to be root-bound, or to have the pots so full of roots that a compact mass is formed. In such a state the lower leaves fall off, and the plants have an unsightly appearance. The secret of good management in this department is, to defer the repotting as long as it can safely be done, so that the plants may be bloomed in pots of manageable size, bearing some proportion to the productions they contain. Abundance of water must be always supplied, and when the flower-buds are set, clear liquid manure used twice a week will be of great service.

The healthy shoots of the plants out of doors, if layered in the beginning of September, and potted when rooted, will make pretty miniature objects, suitable for windows or the front shelves in the greenhouse. When the blooming is over, the plants are cut down, and the pots placed under a south wall, somewhat screened from severe weather. They remain here until the process of propagation is called for in April or May.

VIII. TREATMENT OF CACTUSES IN WINDOWS, AND IN THE OPEN AIR.

The plants commonly called by the name of Cactus, belong to the natural order Cactaceæ, but are known

among botanists and scientific gardeners by various appellations more or less distinctive of their generic peculiarities; as for instance the Epiphyllum, from a Greek word signifying *upon a leaf*, in allusion to the flowers growing upon the flat stems, commonly called leaves; and the Cereus, so called from the waxy and pliant nature of the shoots of some of the species, the Latin word Cereus meaning waxy. Cactuses are very common in this country, on account of the rough treatment they will bear, for although they are natives of hot climates, as Brazil, Mexico, and Peru, and consequently are soon killed by frosts, yet in other respects they are sufficiently hardy to allow of their general cultivation. They are magnificent objects in the stoves and conservatories of the wealthy, where they startle by the contrast between their gorgeous flowers and wrinkled unsightly stems; they also help to set out many a cottage window, and they are usually found to some extent among the floral collections of the middle classes. Yet with this general disposition to cultivate them, few plants are less understood in those habits on which their successful flowering depends.

"I wish you would look at my Cactus," said a lady to the writer the other day, "it is a very fine plant, but it never flowers." On being introduced to this unproductive occupier of pot and window room, a fine piece of vegetation, indeed, presented itself; above a yard high, as green as grass, and every flat stem as plump as a traditionary alderman. "Madam," said the writer, "you feed your plant too much, and in order to make it flower, you must at certain times adopt the starving system." He informed her that he

had one of the same kind, commonly called Cactus Jenkinsonii, not near so tall, and very inferior in *embonpoint* and general handsomeness, which yet bore above 100 flowers last season. The enquirer expressed her wonder at this, and received the following account of the method adopted to produce such a result. It is now submitted to those readers who may wish to make fat and green Cactuses bring some tribute to their floral temple.

In the natural home of the Cactus, there is a moist and a dry season; during the former, vegetation receives a surprising impetus, during the latter it flags, and appears almost burnt up and destroyed. Cactuses may be seen shrivelled up through the heat of the sun and the dryness of the soil, but it is to this circumstance they owe their abundance of flower-buds. The wet or moist season returns, and pushes those buds into a glorious life. How different is this natural treatment from that adopted in windows, and often in greenhouses! The plants are kept wet all the year round, they have no cessation in their growth, but they form no flowers. Let Nature be followed, and the desired result is sure. My Cactuses are put away in the autumn into a lumber room, and have no water until the middle of March. They are then brought out covered with dust, cleaned, and gradually supplied with water. In May they are as plump as can be wished, and are covered with flower-buds. They are then kept supplied with moisture until the flowering is over, when they will take their chance in a sunny part of the garden against a

south wall, until cold weather comes, and consigns them again to the lumber room.

A light soil, composed of brick rubbish mixed with loam and leaf mould, is best for them, and need not be changed every year, if the top is removed and a fresh layer put on every spring. Large Cactuses cannot be grown well in windows, and my plan with them is to put them out of doors every day, where they will have all the sun, and to bring them into the sitting room just as they are about to flower. The whole tribe is easily propagated. The cuttings should have the wound healed before being potted, and no water should be given for a month or six weeks afterwards. Such is my simple plan. *Experto crede.*

September.

"Gradual the woods their varied tints assume;
The hawthorn reddens, and the rowan tree
Displays its ruby clusters, seeming sweet,
Yet harsh, disfiguring the fairest face.
At sultry hour of noon, the reaper band
Rest from their toil, and in the lusty stook
Their sickles hang. Around their simple fare,
Upon the stubble spread, blythesome they form
A circling group, while humbly waits behind
The wistful dog, and, with expressive look
And pawing foot, implores his little share."

Grahame.

The Calendar.

Flower Garden.—The beauty of the garden will now much depend on general neatness. Decaying stems and leaves should be removed, and the broom be in active operation to keep the lawns and paths free from the fallen foliage. Transplant Evergreens. At the end of the month put in Crocuses, Hyacinths, &c. Pot Hyacinths as early as possible, and put some in glasses, keeping them in the dark until roots are formed. Tender things which have been bedded out may be taken up and potted, before they suffer by early frosts. Continue to sow hardy annuals. Divide herbaceous plants. If cuttings of Carnations, Pinks, and Pansies are rooted, pot them off, or remove them to a sheltered

bed. See that Chrysanthemums are not pot-bound, or they will lose their lower leaves. Layer evergreens and hard-wooded shrubby plants.

Kitchen Garden.—If not done before, a little Lettuce seed may be sown for spring use. Plant Lettuce and Endive. Earth up Celery, Broccoli, &c. As Onions ripen, their leaves may be bent down; if inclined to continue luxuriant, this will hasten their decay. Get ready frames and pits, by cleaning, glazing, and painting. Keep up cleanliness everywhere, to prevent the spread of mildew and the increase of slugs and other insects.

I. CULTURE OF BULBS IN THE GREENHOUSE OR WINDOW.

When the first of September arrives, and the fields have yielded up their produce to the ricks and barns, the observer of nature begins to catch, as from a distance, the signs of the approach of winter. The breath of morn has a different character, and evening pours down colder dews. Leaves become sear and yellow, and, falling at our feet, remind us that their work is done, and that very soon the branches from which they have been driven will be completely bare. To the gardener who loves his occupation, still more numerous and painful premonitions are conveyed of the decay of his favourites; for although the flower garden is now more beautiful than ever, he knows that loveliness is no guarantee of perpetuity. A frosty morning will

soon turn all this sparkling scene to blackness, leaving nothing behind but withered foliage and unsightly stems.

"Lover trust not to her eyes,
When they sparkle most, she dies!"

But the amateur will be cheered with the reflection, that, as the revolving seasons consign one part of nature's works to decay, they call into existence new beauties, and that even winter will be graced with a floral wreath. At no period have flowers so strong a hold on the affections as in the season of winter. The Snowdrop with its pure white bells, and the Crocus with its corolla of gold and purple, and the Primrose with its striking contrast of green and yellow, become favourites then, while the prouder aspirants of summer are fast locked in frosty bands. An indigenous flower of the woods rises into importance from the circumstance of its defying the influences which have banished the tender exotics from the parterre, and perhaps the heart never so thoroughly enjoys a flower as when it smiles upon us from the general sterility and bleakness of winter.

By cultivating flowers in-doors, we improve upon this kind provision of nature for pleasing us at the most dreary season of the year; we thus become independent of rain and snow, and hard frosts, and can secure fragrance and beauty in the very heart of the winter. To do this with exogens or ordinary greenhouse plants is very difficult, unless a greenhouse is at our command; but the endogens or bulbs are more pliable, and find in the window of a dwelling-house a region suited to

their development. I shall now endeavour, briefly, to detail the plans which I have myself found successful for several years in furnishing a constant supply of beautiful flowers from January to April. I shall confine myself to Hyacinths, Tulips, and Crocuses, as they are bulbs which present few difficulties, are easily procured, and furnish a pleasing variety of colours and fragrance.

Supposing you have only one window capable of holding in one row, on a shelf or table, one dozen small pots, it will be necessary that you have three dozen at least to secure a variety. Much has been written on the proper size of the pots for Hyacinths, &c., and I have tried various sizes. The result of my experience is, that very small pots will bloom Hyacinths and Tulips in perfection. To secure the fullest development, no doubt large pots are best, especially when the increase of the parent plant is desired. But as it is necessary to economise space in this pursuit, it is gratifying to know that pots called sixties, about five inches deep, and four wide at the top, are quite large enough. Procure three dozen such pots of the best make, and as thin in their fabric as you can get them. Some pots are clumsy from their undue thickness, and of a dirty brown colour, while others are almost as thin as a tea-cup, and of a pleasant light hue. The soil should be fine and porous, such as will not cake together when watered; as a general instruction, I may say, that the mould of an old kitchen garden, mixed with about one-sixth part of white sand, will do admirably well.

Having your pots, and mould, and a quantity of

broken crockery, unfortunately too plentiful in every house, in readiness in some shed or outbuilding, proceed forthwith to commit your bulbs to the care of mother earth. I would recommend one dozen Hyacinths, double and single, and of various colours; one dozen early Tulips, and one hundred mixed Crocuses. Procure these of a respectable seedsman, and you may rely on his honour to serve you well. Directions as to shape, weight, &c., though important, will often fail in practice; but the opinion of a man who has been all his life in the trade, and whose interest it is to sell a good article, may safely be taken. The bulbs being ready, put a crock over the hole of the pot, and about one inch deep of small pieces at the top of that for drainage; then fill the pot, and plant the bulb. The Hyacinths should stand about one-third out of the soil when planted; the Tulips should be just covered; and the Crocuses may be buried about an inch. One Tulip in a pot will be sufficient; but as many Crocuses may be put in as will cover the surface without the corms touching each other. Let the soil in every case be pressed gently down, and the work is done. If you have named sorts, let the names be written neatly with a lead pencil on labels made of deal wood, painted white. The trouble is a little increased by this plan, but the pleasure will be greater, if you are able in the after stages of growth to appropriate to each of your flowers the name by which it is generally known.

No water need be applied at first, if the soil is moist; but the whole collection should be placed in a dark cellar, in the dampest part of it. The bulbs will soon

push forth roots, and the soil should be kept moderately moist. The more free-going bulbs will root so rapidly that you will see the points protruding through the hole in the bottom of the pot, and you may then move them to the light with the greatest advantage. But others produce roots very shyly, and you must be guided by the upward movement of vegetation; and when there are indications of leaves on the surface, it will be proper to bring them to the window. The Crocuses must be forced very gently, until the flowers are quite ready to expand, or they will send up long spindley leaves, with very imperfect flowers. Let them have all the light and sun you can possibly give them in the window, for which purpose they should be placed close to the glass; for it is absurd to expect a flower to come to perfection when it is placed behind curtains or blinds. Each pot should be placed in a saucer; not the ugly thing of the same material as the pot, but a neat tea-saucer, any number of which may be obtained cheap at the china-shops. Water must be increased in quantity as the plants grow. Much might be said on the application of water generally, but I must not omit now to state that, as the flowers advance, it must be copiously supplied; but let it be given often, and a little at a time. If the water remains in the saucer long after the operation, it is a sign that too much has been given; but if it is quickly absorbed by the roots, you may be sure you are right. In sunny days in the early spring, when the bulbs are in flower, evaporation will be very rapid. The smallness of the pots I have recommended to be used renders attention to this department more

necessary, since the bulbs have but few resources around them on which to depend in a time of drought.

Some of the bulbs will be long before they exhibit signs of growth, and they may remain in the cellar longer, and in this way a succession will be secured. You may expect two or three failures out of the thirty-six pots, but you will be amply repaid notwithstanding. Remove the advancing flowers out of the way of frost; put them out in the garden when there comes a mild, warm rain. This is all your winter garden will require. Your affections will soon be engaged on behalf of your nurslings, and, having tried the experiment one winter, I am sure you will be anxious to repeat it the next.

II. SPRING BULBS IN THE OPEN AIR.

The writer wishes now to call attention to bulbs grown in the open air, as they ought to form a conspicuous part of every well regulated garden. This is the time for laying in a stock and planting; the latter operation, indeed, should be no longer delayed, for it is desirable every bulb should be well rooted before winter. Nature is a sure instructor in this duty of early planting; for keep them where you will, bulbs now give signs of life. Hyacinths, Tulips, and Crocuses, are developing their leaf-buds, and unless the formation of roots keeps pace with the growth of foliage, the future plant will suffer.

I have generally observed in gardens a great parsi-

mony in reference to bulbs in the open air; they are planted too far apart, and there are too few of them to make a good display. Yet what can better repay all the labour and money expended on them? How dull will the garden be for many months if this interesting class of flowers is neglected. The growth of bulbs is indeed a winter and spring study, and a most beauteous style of gardening has been enjoyed and has disappeared before the beds can admit the tender exotics which are to adorn them in summer and autumn. My advice is, to be generous now. If you can afford to do so, buy Crocuses by thousands, and Tulips and Hyacinths by hundreds. Remember they are all very free of increase, and with care your outlay will come back with interest. But be careful how you buy. Go to a respectable florist and not to auctions, and lay in a stock of healthy and sound bulbs, and next season you may calculate on adding 75 per cent to your collection, without reckoning small offsets. Crocuses and Tulips multiply without much trouble; and I have found by some years' experience that Hyacinths may be successfully propagated here as well as in Holland. Quantity is indispensable if you would be a bulb amateur in the garden, and the outlay of a few pounds will make you the envy of your neighbours, and become a source of profound enjoyment to yourself. There are many other bulbs besides those I have mentioned, which ought not to be neglected, and the above kinds are only adduced as examples.

Whether bulbs will flower well or not depends more upon their previous culture than on that which can be

given them in pots, or in the ground; since it is not the process of formation which we further by our care, but that of development. Before a Pelargonium cutting can become a bushy plant, its branches must be made; for although the rudimentary principles of a tree are certainly contained in a seed, yet the parts are not formed, and do not exist even in miniature at that early period. With bulbs it is different, for they do contain in embryo all the parts of the future plant and flower, so that their successful growth depends more on their healthiness and strength at the time of planting, than on any subsequent culture. Hence it follows that good bulbs must be planted, or fine flowers will never be the result of the greatest skill and attention. Firmness and weight are therefore to be considered in choosing bulbs, even more than size; for a large bulb, if spongy, will never be so flourishing as a smaller one which is compact and firm. Select fine well-developed bulbs, in which a large quantity of healthy secretions has been treasured up during the previous season of growth, and then they will flower well in spite of poor soil and bad potting. This is proved by the fine flowers produced by Hyacinths in water. Good soil is therefore to be regarded as more important for the future well-being of the plant than for its beauty at the present season; and as most amateurs regard more the production of fine flowers now, than the future increase of their stock, a well-grown, compact formation is indispensable.

These bulbs may be grown in beds or in borders, according to room and circumstances. Have at any

rate one bed appropriated to Crocuses, that your eyes and heart may be gladdened, when in January or February a kindly sun calls forth their gorgeous beauties. Let this bed, intended for early effect, have every advantage you can give it, sloping towards the south, well drained, and composed of friable, generous mould. Such a bed may have a few early Tulips and Hyacinths mixed with the Crocuses, that when the latter are off, it may still be attractive. But probably the borders will generally be preferred to separate beds, and then the following plan will be found advantageous. Let the outer row be composed of Crocuses, the next of Hyacinths, and the third, or inner row, of Tulips. You need not be afraid of planting too thickly, but let there be two or three inches space between each kind of bulb. The Crocuses will be off the bloom by the time the Hyacinths are in their prime, and the foliage, long and pendent, of the former will make a pretty fringed border for the latter. Oval or round beds have a fine effect when planted in this way; the beauty is prolonged, and the whole may be cleared away in time for the spring bedding-out of the greenhouse exotics.

In their arrangement, reference should be constantly made to the season when they bloom, that the position in the garden may be chosen which is best adapted to their display. Many of them come in flower at a time when the whole garden is not readily accessible, especially if there is much Grass. To place flowers in situations seldom visited, or which cannot be reached without getting damp in the feet, or without treading over gravel walks which recent frosts may have dis-

turbed, would be a useless expenditure of time and money. The eye therefore should glance round the premises, and the bulbs be apportioned to those parts nearest the dwelling-house, which frosts and rains are least likely to make unapproachable.

By detailing his own practice, the writer conceives he may best promote the interests of his readers, and he will therefore tell what he means to do in relation to his own garden in the department of bulb-planting. A road passes up to his house, bounded on one side by a lawn, within a foot of the edge of which are circular beds, about two feet across, and a yard distant from each other. These are now occupied with Dahlias and Scarlet Pelargoniums alternately, and consequently may soon be expected to be vacant, and they are then destined to be occupied by bulbs. It is proposed to remove the soil to the depth of eight inches, and then to dig into the lower stratum a good quantity of leaf-mould and road-grit, which has previously been mixed together, and for the greater part of the past year has been in a decomposed state. This being well incorporated with the soil of the beds, the surface of each must be smoothed, and the bulbs placed upon it, a little pressure being used with each, to settle the disturbed mould, which would otherwise be too hollow. Round the bed put two rows of Crocuses not more than one inch from each other; then six Hyacinths spread equally over the remaining portion, filling up the vacant spaces with early Tulips. Each bed of this size will thus contain about 72 Crocuses, six Hyacinths, and a dozen early Tulips. The taste of each gardener

can regulate the colours of these various kinds of flowers, as there is room for great diversity. The Hyacinths may be all different, or mixed, or all alike in each bed; and the Crocuses may be mixed, or of one kind. If a number of small beds are together, a good effect would be produced by having one colour in a bed, the contrasts being furnished by the beds themselves. As there may be innumerable combinations of colours, each amateur can consult his own pleasure in the matter.

When the beds are thus filled, a little leaf mould and sand may be placed over them, and the soil taken out should then be carefully replaced, if of good quality; but if it is gravelly and heavy, it had better be all removed at once, and a light friable loam be put instead of it. All is then completed, and we must wait till spring does its work, and brings the flowers above the soil. The Crocuses will appear first, then the Tulips, then the Hyacinths, keeping up a succession from February to May. By the beginning of June all will be ready for removal, to make way for summer flowers. The interest attached to such beds will be very great indeed, fully repaying the cultivator for all his expense and toil, and giving a beauty of no common kind to the garden at a season generally deficient of flowers.

Of course the gardener can place his bulbs where he pleases; and this illustration is only given as a general guide. The principles of management will apply in every case, an adaptation being adopted according to the size and position of the grounds. During the

winter, be careful of the ravages of mice, for they often devour thousands of Crocuses and Tulips before they are observed. Snowdrops, Crown-imperials, Narcissus, &c., may be placed in clumps in various parts of the beds, bordered in the manner just described, and, thus furnished, wait with patience till the first warm suns of spring call your beauties above the ground.

III. CARNATIONS AND PICOTEES.

The skilful grower of these favourite flowers will need no instructions from us, knowing, as he does, by past experience, the care demanded to preserve a collection in health during our long winters. But all lovers of Carnations are not adepts in the art of growing them, and for such the following observations are intended. Let it be premised, that if you desire to possess a stock, do not purchase now, but wait till the spring. I hope those who grow for sale will not censure this advice too strongly, for while we wish to give every encouragement to the raiser of fine flowers, it must not be at the expense of the purchaser. An inexperienced amateur who should buy a dozen pairs of Carnations in December, would probably lose half of them before March, while the grower of them, knowing their habits, would be able to preserve them without inconvenience. Wise men, who see further than the present moment, will not think their interests ultimately

promoted by the public being disgusted with the patronage of their productions on account of their money and labour being thrown away. On the contrary, florists of integrity and good feeling will be conscious that their own prosperity will go hand in hand with the success of their customers.

Presuming that you have your layers established in small pots, you have to guard principally against damp, by far the most potent enemy with which the Carnation has to contend. In its native places it enjoys the drainage and the dry air of mountains where no mildew can generate; and our attempt must be to assimilate its artificial state to its natural one. Cold does this plant no harm compared with wet. Look at a collection after a damp season, such as we have every winter, and you will find the plants disposed to be sickly, and often covered with blotches, occasioned by a fungus preying on the leaves. Look at the same collection after a keen frosty night, and new life seems to be diffused through the whole. There is not a greater difference between a schoolboy hovering over a fire on a wet half holiday and the same shivering object enjoying a slide on a frozen river, with bright eyes and ruddy cheeks, than there is between Carnations in wet and in dry cold weather. There is a fine bloom on the leaves of healthy plants, which gladdens the amateur. Let Nature, then, be your instructor in the care you take of these flowers, and let them have all the air you can give them, never shutting them up, except for the purpose of throwing off the wet, when, of course, the sides of the frame, or other covering,

should be quite open. Few things do more harm in horticulture than *petting* plants in ways uncongenial with their habits. A friend of ours, who had a meadow, thought he would enter on the sheep trade, and he accordingly bought twenty fine ewes. As winter was coming on, he thought his sheep would need protection, and he paid a couple of sovereigns to build a shed for them. But he was vexed to find his money thrown away; for in the heaviest snows and hardest frosts the sheep preferred the high land of the field to the doubtful protection of the hovel. So is it often with flowers.

Next to damp, vermin must be watched. It is very distressing to find some morning our Carnations nibbled off close, like the shorn head of a workhouse boy. What has evidently been a source of pleasure to some chewing and digesting animal like ourselves, gives us extraordinary pain, and we cry out against the equality and fraternity doctrine and practice of the intruder. It matters not to us whether the plants have been gnawed by a field-mouse as interesting as that which Burns immortalized, or by a bullfinch or a robin, like those which Cowper loved to see eating, or by a slug which every one execrates. The effect is equally odious and provoking, and drives sentimentality far away. Let trap or gin, or gun, or soot and ashes, do their work accordingly, that the thieves, whether reptile or winged, or four-footed, may be taught to keep their distance.

IV. PREPARATIONS FOR WINTER.

Although brilliant skies and a high temperature seem to make the mention of winter unsuitable, the amateur must not forget that the middle of September scarcely ever passes away without sharp frosts, which give him a seasonable premonition of what is so soon to come. It has often occurred, within our memories, that the earth has been frost-bound in November to such an extent as to destroy everything tender or half-hardy in the gardens. A wise horticulturist will provide against all such contingencies, and avail himself of the present favourable season, to guard against the ravages of a less propitious one. Nothing is more discouraging than to lose all our garden beauties by the winter's cold, so as to be obliged either to purchase or beg at the next spring. This mortification may be avoided by persons of the most slender means, and I shall consult the interests of a very large class of gardeners by giving the details of a practice by which the tender exotics which delight us in summer may be preserved in winter. To professed gardeners this is a subject quite familiar, and demands from them the highest exertions of their skill. I do not write for them, but for amateurs of less experience, who are so often ready to give up their floral pursuits on account of their losses from cold.

The time has arrived when every gardener who wishes to manifest an acquaintance with his profession will be looking round the sphere of his operations to

see what is to be done in reference to the approaching cold season. His head must be employed, and his hands actively engaged from the present time up to Christmas, when probably rain and frosts may keep him in-doors. Neglect now will be productive of fatal results, for gardens in the present day are as full of exotics as of indigenous productions, and various differences of treatment are demanded for the preservation of the stock until another year. Begin your perambulations, then, at once, and let nothing escape you, in the kitchen garden, the flower garden, the shrubbery, and the greenhouse. Let your observation be extended to the future, and carefully mark what is to be done.

In the kitchen garden you must decide at once what plots of ground you will leave fallow, to be thrown up in ridges during the winter, that the soil may be pulverised and ready for early crops—and what portions you will plant and sow at once. Seed-beds of Cauliflowers, Cabbages, and Lettuces, should be finished immediately. According to your probable wants must be your supply of young Cabbages, to be cut young, and others to remain till the spring and summer. Spinach may still be sown; also some Onions. Some cultivators recommend Parsnip sowing at this season in preference to the spring; and it would be well to try the experiment if you have not done so. Do not neglect to leave a piece of ground for autumn-planted Potatoes, as the advantages of the plan are so well attested, provided proper precautions are taken as to soil, mode of planting, &c. All Broccolies and winter Greens must be earthed up, as a means of promoting growth and

guarding against frost. The blanching of Celery should proceed gradually, about two inches at a time—care being taken to prevent the soil falling into the heart of the plant, and at the same time not to crush and twist the tender tissues, as is often done by the rough grasp of the gardener. Finally, attend to cleanliness. Strawberry beds should be finished off now, and not left in a wild, rank state till the spring. Pea-sticks, and all decayed haulm, and all weeds, should be removed, not only that neatness may give its charm to the garden, but also to prevent the rapid production of damp and mouldiness, which are quickly generated among masses of decaying vegetation.

In the flower garden you should consider what departments you intend devoting to bulbs, and the beds must be prepared for that purpose as soon as possible. A difficulty is felt in this case on account of the beds being often occupied till late in the season by autumnal flowers, which we are, of course, unwilling to sacrifice before the frost commits its ravages. Here there is no remedy but to pot Hyacinths and other bulbs which ought to be growing, and then to turn them out as soon as the beds are ready. Attention should now be given to taking up plants which it is desirable to preserve, a few at a time, so as not to leave gaps, or spoil the general appearance of the garden. Young Fuchsias, Pelargoniums, and Verbenas, if taken up carefully, and placed in a shaded frame after being potted, will flag scarcely at all. They will form pretty window plants till Christmas, and, what is more important, will constitute a stock to propagate from in the spring. Tender

greenhouse plants which have been out of doors during the summer must be watched, lest an unexpected frost should injure them. They need not be taken in, but the amateur should have his eye upon them, and when the night is brilliant and frosty, the most sensitive should be put under shelter.

The cuttings prepared for next year should now be looked over, and if they are rooted may be potted, either singly or three or four together, according to their habits. Every piping of Pinks and Carnations must be in the ground or pots at once if you wish them to stand the winter. The secret of preserving these beautiful plants is, to secure plenty of roots. Pinks and Carnations cannot endure much moisture, and they must therefore have plenty of drainage, abundance of air, and be planted high on the ground. The same remarks apply to Auriculas, Polyanthuses, and Pansies. Some people treat plants as they do children; they love to make them comfortable, and they tuck them up with mould to keep them warm, until warmth and damp combined destroy them. The natives of the Alps and dry extended plains cannot be petted in this way with impunity.

In another paper I have given some account of an appropriate *habitat* for plants which it is desirable to preserve during the winter. A dry pit, with facilities for excluding frosts, is indispensable, when the amateur's stock exceeds what he can conveniently protect in his dwelling-house. Choose the highest and best-drained portion of the garden, and let the pots when stored away be placed with their tops a few inches be-

low the surface of the surrounding ground. The ordinary covering of glass and a mat will suffice till hard frosts set in, when the sides of the frame placed over the pit should be protected with a lining of dry straw or other material piled to the level of the lights. This, with an extra mat or two, will defy all ordinary frost. But I must reiterate the necessity of giving air and light on every favourable occasion, and also of leaving the plants in darkness for a day or two whenever a thaw occurs. More plants are lost by exposure to solar light after frosts than by any other means; and it is a fact that cannot be too extensively known, that frozen vegetation, even in the case of tender exotics, will recover itself in most cases, if allowed to thaw in the dark.

But what is to be committed to the care of a pit during the winter months? Probably many gardeners have scarcely thought of this yet; for it must be confessed great improvidence is often manifested by those who profess and display great attachment to floriculture. Persons of experience will, before this time, have struck numerous cuttings of those flowers which beautify their gardens in summer, such as Verbenas, Petunias, Heliotropes, Pelargoniums, Fuchsias, &c. These, if not too large and too crowded, may be allowed to remain together in the pots or pans in which they have been rooted; they will keep better than if they are now potted separately, and space will be economised. If cuttings have not been made, they may yet be put in, running the risk of a failure on account of the lateness of the season. A gentle hotbed, with care, will even now secure roots

to many cuttings, which may cautiously be hardened off before winter is confirmed.

But presuming it is too late to attempt to strike cuttings with the inferior means many amateurs possess, I will call attention to what is now in existence in pots and in the garden, which may be preserved successfully for another year. Verbenas, which have been pegged down early in the season, will be found to have rooted. Take up as many as you require of these rooted offsets, and let them be carefully potted and transferred at once to the frame or pit. Pelargoniums which have done flowering should be cut down, leaving only a few leaves on the pruned stems; the mould should then be shaken off, the roots pruned, and the plants replaced in smaller pots. But more care and thoughtfulness are demanded in the case of plants still flowering in the borders, which it is desirable should be taken up and preserved. If you have many, you must sacrifice the bloom of some of them, take them up at once, and let them be treated as above directed for plants in pots. But as there may be no injurious frosts for some weeks, let the bulk of your plants remain where they are some time longer, indeed, until frost touches them. Calceolarias, Fuchsias, Pelargoniums, &c., may then be taken up, and the greater part of the foliage cut off. They may then be potted and put into the pit. With ordinary watchfulness your present stock may in this manner be preserved, and delight you with their beauties next season.

Scarlet Pelargoniums are not so soon prostrated by frost as many other greenhouse plants are, and they may,

therefore, be left in the ground longer. But their great enemy through the winter months is damp, and against this they must be diligently guarded. When taken up, put them in small pots with a light soil, and let them be placed not in the frame or pit, but in a cellar or room in the dwelling-house, where they will have air and light, but no moisture. With this precaution nothing is more easily kept through the hardest winters. While some young plants should be struck every year, those of two or three years' growth have a fine effect, and constitute a gorgeous ornament in any garden. They may be trained to almost any size, and should be cultivated extensively by every amateur.

V. ON PLANTING.

Reader, did you ever see a tender mother soothe a child to sleep, and afterwards lay it down to rest? The operation, to uninstructed eyes, may appear very simple, scarcely demanding a thought, but it is really one of great skill and difficulty to perform properly. The babe must be so held as to render every motion as pleasing as possible; the tones of the voice must be gentle and soothing; and, in consigning the little one to its bed, all the mechanism of the arms of the nurse must be exercised to prevent any jarring or rough motions disturbing its slumbers. An experienced mother can tell at a glance whether the infant is rightly put to bed, and from the mode in which the duty is performed, can

predict the length or shortness of its repose. We mistake greatly when we imagine duties are easily discharged because they are common, and have common things for their subjects; for matters of every-day occurrence, and which seem to be perfectly easy, often demand a long apprenticeship for their efficient performance.

The familiar illustration just noticed has often occurred to me when engaged in planting, or when contemplating the right or wrong methods in which this important part of gardening is carried on. An experienced eye can tell whether a proper degree of repose (so to speak) is given to a plant when committed to the earth, and from the way in which this is done, can predict the future destiny of the shrub or tree. Yet to the unthinking what is apparently more easy! To dig a hole, and thrust the roots into it; and afterwards to tread down the loosened soil is, with many, the whole theory and practice of planting. The result of this ignorance is visible in the great majority of gardens. Many productions die; others can only maintain a slow and sickly growth. Fruit-trees canker, and ornamental shrubs continue dwarfish and dwindling, more from improper planting than any other cause. Soils, of course, have considerable influence, but planting has much more; and when the amateur cannot command the former of the exact kind, he may, in a great measure, surmount the inconvenience by skilful planting.

Let two men purchase two collections of Rose-trees of precisely the same varieties, age, and general character, and plant them in the same soil and aspect, and yet the

results may be as different as possible, leading at first sight to the conclusion that the unfortunate grower had been imposed upon in the quality of his plants. The Rosary of one will be rapid in its growth, making, in some cases, shoots four or five feet long in a season; the flowers will be numerous and fine, and the foliage indicative of robust health;—while the collection of his companion will be in all respects the reverse of this. On examination, the cause of this marked difference will be found to be the different modes of planting pursued. The trees of the disappointed grower were hurried into holes just dug *pro re nata*, and as hurriedly filled up; while his more successful rival had trenched his ground previous to planting, and arranged the fibres of the roots as carefully as a mother would compose the limbs of the little one to sleep. Neither plenty of dung, nor repeated applications of liquid manure, can atone for the first and radical offence; an entire replanting is the only method of attempting a reform, and even that may come too late.

The principles of correct planting in the open ground are the same as those which regulate pot culture, allowance being made for the altered circumstances of the plants. Indeed, good planting is even more necessary for plants in pots, since they are so artificially situated, and have so little chance of being liberated from the bad management of man, by any kind intervention of Nature. A tree may possibly get on, in spite of the want of skill in the planter, because the soil being favourable, the roots may escape from their pent-up position, and abundant rains may redispose the clods so

unceremoniously thrown upon them. But let a plant be once badly potted, and its chance of flourishing is gone indeed. The pot presents an impassible barrier to the roots, and the water applied only makes the mould more compact, and less capable of fulfilling its office. There is also this difference between planting in the open air and in pots: in the one case the thing only requires to be done once, while in the other the operation must often be renewed. Yet how constantly is this particular forgotten by amateurs who are really fond of flowers, whose collections are sickly because the pots are full of masses of roots, which in hopeless continuity perform pilgrimages around the walls of their prison, seeking a loophole for escape. Turn the mass out of the pot, and how curious is the spectacle! The soil by some strange process is gone, and in its place there is a coil of vegetable fibre, which, in some cases, has travelled six times round the pot in search of fresh nutriment. In such cases these efforts of nature are useless, and the spongioles find that they

"——drag at each remove a lengthening chain."

As potting has been before discussed, I propose, in another paper, to expound familiarly the best mode of proceeding in planting in the open air. In the meantime let me give a word of advice on the necessity of acting on philosophical, or, if you please, physiological, principles, in all gardening operations. Nature works by rule, as surely as the expert artisan or mechanic, and our wisdom consists in finding out her methods of procedure, and then humbly imitating them. By a long

course of experience, if guided by a habit of observation, every man will in time become skilful; but there is a more compendious method by which much time will be saved, and that is, by reading the results of the observations of others. I would recommend to every amateur to study well good works on the subject. I owe much of the pleasure and success I have found in gardening to the perusal of such books, and no one can be ignorant of first principles and hope to be a successful horticulturist. The labour of years will be superseded by becoming acquainted in this easy manner with the discoveries of others, and with the great laws of vegetable growth, which the collation of those discoveries has brought to light. A man may indeed be a great reader, and yet not a practical gardener; but a judicious application to books will always shorten our labour and make our failures fewer. The reason why a certain mode of planting and potting is more efficient than others, it is very desirable to know on many accounts, and a man must either discover the theory by extensive research, or learn it from others. We have before recommended Lindley's Theory of Horticulture, and it will prove a safe guide.

VI. ON PLANTING.

I have lately met with two good illustrations of what I have said respecting the manner in which roots in pots will perform their revolutions round the

sides of their contracted dwellings; and as the subject is one of great practical importance, I will relate the particulars. Two years ago I purchased a Wistaria sinensis from a nursery, and turned it out of the pot into a situation which I expected would have proved highly favourable to its rapid growth, but to my surprise and disappointment two summers have passed without its advancing an inch, although still alive. As the plant was surrounded by others which grew well in the same soil and situation, I concluded there must be something wrong at the roots, and on taking up the plant, I found them coiled up in a very symmetrical and cylindrical form just as they left the pot, only much enlarged, leaving no doubt of the cause of the stunted growth I complained of. I have disentangled the web of roots, and planted it afresh, and I have no doubt I shall now meet with success. The other instance was of a similar character. I struck a number of climbing Roses in pots three years ago, and turned them out into their permanent situations when very small. On taking up one which had grown but little, I found the same phenomena as exhibited by the Wistaria. These instances convey a lesson which is taught theoretically in all good treatises on gardening, but which is liable to be neglected in practice—that in planting from pots, the roots should be shaken from the mould and arranged properly. No one would forget to do this if the pot were crowded with roots; but these cases show that even where there appears to be plenty of pot-room, the roots may have received a direction

which they will keep if it is not disturbed. I remember I was very careful in not disturbing the Wistaria when I planted it, hoping to forward its growth by allowing the roots to remain as they were. But the result has shown that I was wrong, and that the proper mode was to have disposed the roots *de novo;* I should then by this time have had a flourishing plant many yards high, instead of being obliged to begin again.

The first thing to attend to in out-door planting is, trenching the land. This must be done to a considerable depth; say about two feet or thirty inches. If an orchard or flower-garden is being laid out for the first time, the general drainage must be looked to before success can be hoped for. But if a new bed only is contemplated, or the planting of a single tree, the soil must be well disturbed; and if the subsoil is inclined to retain wet, an artificial drainage of bricks and stones is desirable. The digging must also extend much beyond the hole necessary for admitting the roots of the tree; the further this is done the better, as it is often the case that the surrounding soil has not been disturbed for centuries, and roots placed in a hole encompassed by such a hard mass will not ramify, but will be similarly situated with those in pots.

Trees and shrubs should always be planted high, to counteract the evils arising from unsuitable subsoils, and also to allow the air to get at the roots. People seem to think that, provided the stem appears above ground, it matters nothing where the roots are, and hence we often see newly planted trees covered up to the stem

with paving stones, or gravel, and perhaps so situated that the soil is daily trodden on right up to the unfortunate prisoner. The nearer the roots are to the atmosphere, and the more porous the soil above them is, the better. I have just planted some fruit trees on the top of trenched ground, without digging a hole at all. There will in this case be a small mound, visible above the surface, and the trees will require a strong stake, and careful attention as to watering in dry days in spring; but with these precautions, I have no doubt the plan will be successful.

The smaller roots should be carefully preserved, arranged round the tree as much as possible, and kept near the surface. It thus appears that in transplanting, care should be taken to preserve the bunches of fibres which are too often torn from the stronger roots, and left in the ground. It is to be lamented, that even in nurseries too little attention is given to this matter, for we often see trees sent out with only a strong stick of old root attached, all that was really valuable having been cut or rent away. The remedy for this unworkmanlike treatment is for amateurs to be more knowing on such matters themselves, and to refuse to purchase trees which are so roughly treated. Firmly tread down and water, and your work is done, always remembering to keep a watch as to drought during the first spring and summer.

VII. CULTURE OF STRAWBERRIES.

Few gardens, however small, are without a spot devoted to the growth of this favourite fruit, although very many persons fail of securing an adequate produce. This disappointment is attributed to many causes but the right one, which is, in general, an ignorance of the habits and wants of the plant. In most instances we find a bed appropriated to the Strawberry, as ancient as that given to Asparagus, the treatment of which has been annually the same for probably fifteen or twenty years. The following is the routine generally practised by those who prefer "the wisdom of our ancestors" to abundant crops of fruit:—The young plants are set pretty closely in the first instance; the runners go where they please, and by the following autumn have formed a network all over the bed. The whole of the foliage is then mowed or cut down, and a layer of dung thrown over the denuded plants prepares them for the coming spring. As there is no rule without exceptions, and nature *will* often be prolific, in spite of untoward circumstances, it happens that the owners of such beds sometimes tell you they have abundance of fruit. The rule, however, is, that under such discipline the Strawberries grow "small by degrees and beautifully less," until the gardener is compelled to have recourse to a remedy, and begins this ten or twenty years' course over again.

Now the fact is, that the Strawberry, although cap-

able of an indefinitely prolonged existence, by the production of offsets from the old stools, will bear well for only a very limited period; and the renewal of the beds every third or fourth year is the practice of all experienced gardeners. It is strongly recommended to amateurs to make a new plantation every year, and to dig up the beds every fourth season. Thus, if at the present time your garden has been arranged on this four-year principle, the following will be the state of your Strawberry beds:—One is about to be dug up and planted with something else, or, what is far better, has been dug up since July, and is now covered with some growing crop; the second is just planted; the third is two years, and the fourth three years old. By this method, a supply is secured without the loss of a year, as is the case when the whole stock is destroyed at once, and as by proper management those just planted will bear next season, abundance of good fruit may be reckoned upon.

As this is a good time for making new beds, the first thing to be done is to fix upon the sorts you intend to patronise. The varieties are very numerous, and fresh competitors for public favour are constantly appearing, so that there is room for caprice, or experiment, or love of novelty. If neither of these impulses is very strong within you, and you feel that you can be satisfied with good tried sorts, take these three—Keen's Seedling, the British Queen, and the Elton Pine. These are deservedly favourites, as having fine flavour, and being plentiful bearers; they also come in in succession, which is a great advantage. If you have no

old beds, you must procure runners elsewhere, with all the best sorts you may require, having young plants with the roots expanded and somewhat dry. But if you have old beds and have determined to plant out the runners in a nursery bed in the summer, you cannot do better than adopt the following rules, which, for several years, have been found effective in securing good crops of fine luscious fruit.

Let the ground be well dug, and incorporated with good rotten dung from an old hotbed or Melon pit. I prefer growing Strawberries in double rows at the edges of the beds in the kitchen garden, and I think the plan has many advantages. But whichever mode you prefer, I by no means allow the plants to be more than two rows in depth, but interpose a path half a yard in width between every plant of two rows. The object is to have every plant distinct in the rows, so that air and light may be fully enjoyed, and runners may be easily cut off as they appear; and also that a space may be allowed wide enough to walk down the beds, to get at the fruit. Having your ground marked out with a line, proceed to the old bed, and take up the young plants which have rooted in it with a trowel. Choose those which appear to be most strong and established. Then dig holes with the trowel along your line, and carefully deposit the plants in them, about a foot apart every way. As the Strawberry has, even in its young state, a vast quantity of root-fibres, the process of taking up with a trowel preserves these, and prevents the plants being much checked by removal. By this process some fruit may be expected next year, although

not so much as a more scientific plan would have secured. These plants, removed from an old bed, have been denied many advantages which a little forethought would have given them; they have been crowded together and shaded by the old leaves, so that they are not so fully developed as they might have been if the runners had been planted in a nursery-bed in the summer, as soon as they were old enough to be removed.

As the treatment needed afterwards can be dwelt upon more usefully at the proper season for applying it, more need not now be said on the subject. If not done before, your old bearing beds should now be looked over. Remove all runners and dead leaves, but do not interfere with those which are healthy, as they have even now more work to do in maturing the future buds. A little dung may be laid on the surface, and worked in with a fork, but do not let the prongs go too deep to interfere with the roots. I have sometimes thought Strawberry-beds are manured too highly, inducing too large a growth of leaf, to the injury of the fruit. One thing is certain with regard to vegetation generally, that, in proportion as you manure highly, you must allow more room. Turnips will bulb well when left thickly together on a poor soil; but, if it is rich, they must be hoed out to greater distances, or there will be nothing but leaf.

October.

"There are vapours in the sky,
When the day-break opes its eye;
There are vapours round the sun,
Ere the hastening day is done;
Yet October, pale and sere,
Thou to me of all the year,
Now declining to its rest,
Art the lowliest, sweetest, best;
To the spirit's musings holy,
Gentle month of melancholy!"

The Calendar.

Flower Garden.—This month demands great activity of the gardener, if he is anxious fully to discharge his duty. Though frosts will destroy some things, much beauty will still remain, if neatness is sedulously kept up. All decayed vegetation must be cleared away, and the whole garden kept free from leaves by frequent sweepings. If possible, all new trees and shrubs should be planted before October ends—the earlier the better. Some protections should be given to the crowns of Dahlias, which often protrude above the surface of the soil, and may be injured by frosts. The stock of plants for bedding out should be now arranged, giving protection in cold pits or the greenhouse, according to the habits of each. Plant bulbs, as Tu-

lips, Crocuses, and Hyacinths, that they may be well rooted before winter.

Kitchen Garden.—Take up Potatoes, Carrots, Parsnips, &c., as the foliage decays, although there is no necessity to hasten this work, as such roots will keep better in the ground, if very severe frosts do not set in. Do not hurry the gathering of Apples and Pears, but let them be fully ripened. Plant out Cabbages closely for early spring use, and Lettuces under south walls. Make new plantations of Strawberries. Clear off Asparagus and Sea Kale beds, and give a good dressing of rich manure.

I. AUTUMNAL ARRANGEMENTS.

Time flies, and every day leaves a longer shadow behind it, scattering in its passage the premonitions of approaching winter. Although in some situations Dahlias will be in their glory at the present time, in others they have long since been deformed by frosts; and the heavy rains of autumn have given the garden that ragged and marred appearance which reminds us that nothing but the return of spring can restore its beauties. Let labour, therefore, now take the place of that admiring and luxurious contemplation which summer suns, and bright colours, and sweet scents induce. Work is now requisite, in some respects without its accustomed rewards, which must be looked for in the future rather than enjoyed at the present moment. As

the husbandman has now to toil amidst brown fallows and bleak winds for the production of future golden harvests, so the amateur gardener must *work*, animated by the prospect of no very distant gratification.

While it is often necessary to remove trees and shrubs because they are planted too thickly, it is likewise important to fill up vacant spaces, and make additions to your stock of useful and ornamental productions. Look round and see where a new tree may be introduced; where standard or dwarf Roses will add to effect another year; or where flower beds may be advantageously increased in size and number. If your garden is large, you may cultivate Honeysuckles with the best effect. I have many varieties, so as to ensure a good bloom from spring to autumn. I train them among Evergreens and Roses, fastened to pillars and pruned in a pyramidal form. If kept cut close in, they acquire in a few years a firm and regular appearance, and produce abundance of bloom. When about eight or nine feet high, their beauty is great, and attracts universal admiration. If put in now of a good size, and in well drained and fertile soil, they will be all you can wish in a year or two.

Verbenas which have thrown out rooted branches may yet have such offsets removed into pots for next year. All exotics now planted out of doors, which are wanted for propagation, should be raised and potted for preservation through the winter. As that season is fast approaching, it will be unsafe to leave anything tender to the mercy of the frost, unless it is destined to destruction. Scarlet Pelargoniums,

Calceolarias, &c., will do very well in a room from which frost is excluded during the winter. Seedling Dahlias, Hollyhocks, &c., must be looked over, and if any bloom, they may be examined to see whether they are worthy of preservation. Crown Imperials, Martagon, and other Lilies, may be divided, and replanted in light rich soil.

We must again allude to the necessity of neatness, especially at this season of the year, when the best gardens are deprived of so many of their attractions. There may be abundance of evergreens and winter flowers, and yet the garden may present a very repulsive appearance. Grass-plots literally rough with worm-casts; dead leaves crowding into every corner, as if for the purpose of keeping themselves warm; what were once flowers, dangling from the stakes which supported them, like criminals in chains; and numerous dry stems, rattling with a very ominous sound in every wind;—such are the sights and sounds too often seen and heard in really good gardens in the winter months, to the scandal of good taste, and the disgrace of the owners. This is especially the case where a gardener is not kept constantly, but one is employed a day or two in the week. Other matters must be attended to, and the clearing up is deferred until Nature calls too loudly to be longer neglected, and the appearance of Snowdrops and Crocuses infuses new energies into the before torpid proprietor.

Now, the fact is, this clearing up is the work of every day, and cannot be neglected even for a day with impunity. As advancing autumn strews the lawn and

the gravel walks with leaves, let them be removed at least three times a-week. It is commonly said, "Oh, it is of no use sweeping up leaves, for they will fall again, and our labour will be thrown away!" Now, this is an exclamation of ignorance, for neatness is not the only object contemplated by the frequent removal of rubbish. Leaves, when suffered to lie, injure the Grass, and generate damp and moss on the gravel. Then, the act of sweeping is beneficial, and can scarcely be performed too often at this season, for it removes worm-casts and destroys the incipient mosses, which will otherwise soon turn the yellow gravel into a smooth sheet of green. If this clearing process is continued until "the forests are chilly and bare," the garden will preserve throughout a healthy appearance, and confer pleasure upon its possessor. The turf should receive a final mowing in November, and be frequently rolled when the weather permits. Its edges should be neatly clipped, and everything done that can give the idea of cleanliness and symmetry.

The stems of shrubs and flowers should be cut down as soon as decayed, and the beds be raked over once a week. Rose trees may now be pruned, and everything in short be put into the position it is to occupy until the spring. If you have marked the habitats of bulbs, &c., the borders may be dug with advantage, taking care to incorporate with the soil some leaf-mould, or very rotten dung from an old pit or frame. But this must be deferred till spring, if you do not know the positions of underground roots, for it is vexatious in the extreme to bring up with the spade the mutilated remains of

Tiger Lilies and Crown Imperials. A strong stake, projecting about three inches from the surface, should always be inserted to mark the spots which the spade must not touch. Some gardeners use short iron rods, the effect of which is more certain.

As a stimulus to exertion in this clearing operation, the amateur should remember the great value of the heap to which he conveys the leaves and other reliquiæ of his garden. For recruiting flower-beds, this refuse vegetable matter, when thoroughly rotted, is invaluable. The heap should be turned about Christmas time, and then allowed to remain as it is until next autumn, when it will be converted into leaf-mould; or it may be more quickly made available by saturating the heap with the ammoniacal liquor from gas-works, by which decomposition will be hastened. The shrubby stems of Hollyhocks, &c., will all add to this heap, and by its assistance the amateur will be able to secure a more efficient growth, both in pots and in beds. I may as well mention here, that a heap of the rotten dung from an exhausted Cucumber-bed, should be put aside in some retired spot, as, for floricultural purposes, it will be better for remaining another year before it is used.

Reference was made above to those who do not keep a gardener constantly. Now, one of the luxuries of gardening is the exercise it furnishes to its devoted servants, the glow of health and the buoyancy of spirits it produces. If you have a group of children under your control, shivering at an east wind, and blowing their hands to make them warm, try the effect of leaf gather-

ing, and other similar operations at this season of the year; by working among them yourself, you will insure their discharging their duties with life, and they will all confess that the cold they dreaded was only a phantom of the imagination.

II. RASPBERRIES.

A few words on the cultivation of this favourite fruit may be useful at this season, when the old beds require care, and new plantations should be made. The Raspberry will bear fruit with almost any treatment, and this is the reason its culture is so often neglected. Odd corners of the garden, and shaded situations, where nothing else will flourish, are often chosen, and a small crude fruit is the result. Like every other garden production, the Raspberry knows how to turn free air and warm suns to excellent account, and every available advantage of this kind should be given it.

In most gardens we find this plant cultivated in compartments, in rows just wide enough apart to allow of a passage for gathering the fruit; but too frequently these alleys become a mass of entangled branches before the summer ends, thus preventing the comfortable taking of the crop, and keeping the young shoots from the sun and air. Now, in whatever way you plant your canes, let there be great distances between the clumps, wide enough in the rows to allow of other crops. If the rule

is observed, never have two rows of Raspberries together, but to put them at distances sufficient to allow of the growth of Cabbages, Turnips, Celery, &c., every desirable end will be answered. In this case the canes need not be far apart individually, and a greater as well as a finer produce will be secured.

In making new plantations let the ground be trenched half a yard deep, and plenty of rotten manure be incorporated with the soil. This should be done a month or two before the time of planting, to allow of the settling of the earth. As a general rule, Raspberries planted this season should not be expected to bear fruit the next, as the object is to secure a vigorous growth of canes for another year. If you get your plants from a nursery with but little root to them, and probably very dry before you plant them, it will be necessary to nurse them well, in order to get any new shoots from them; and if this year's stems are allowed to bear, you will probably have the fruit and nothing more for your pains, and have to fill up vacancies next year. You had better therefore cut down the stems to within a foot of the ground at the time of planting, and wait patiently till strong shoots next year repay you for your trouble.

But if you have a supply on your own ground, or can go yourself and see the plants taken up at a nursery near your garden, you may secure a crop next season without the risk of injuring your plantation afterwards. The writer has just planted out a quantity of the Fastolff Raspberry, with the two objects of having fruit next season, and a permanent stock, and will detail his

manipulations for the guidance of any who may have confidence enough in him to follow his example. In the first place a hole was dug with a fork, about half a yard across, but not deep, the soil being only loosened by that instrument. With the same invaluable tool the plants were dug up from their old quarters, care being taken to have masses of root fibres adhering to them, and at least one strong bearing stem was inserted in each hole, surrounded by four or five smaller ones. The weak canes were cut nearly to the ground, but the strong were allowed about four feet, and from these the writer has no doubt abundance of fruit will be gathered, and in most cases shoots produced as well. The disturbance being small, and great care being taken in arranging and treading down the roots, the season also being early, it is concluded the canes will have no difficulty in progressing as well as they would have done in their former situation. This plan presupposes that you have an abundant stock of your own, or are not careful of expense, since more canes are required than would ordinarily be given to a new plantation.

Old beds should be now attended to. Cut off close or dig up all but three strong canes to each stake, and let them be firmly tied with some material strong enough to last a year. The thin top should be pruned down to a bud, leaving the canes strong and straight. Some rotten dung may then be forked in, care being taken not to injure the bunches of roots, which will be found in all directions.

III. WINDOW FLOWERS.

A sharp look-out should now be kept up in this department of gardening, for winter will soon destroy the out-door beauties, and the lover of flowers will be dependent on those he can cultivate in the greenhouse or sitting-room. It has been observed on former occasions that, with a little care, the winter months may be charmed away by blooming plants in pots, and now the stock should be looked over, that some sorts may be forwarded and others kept back, and that none may suffer by unexpected frosts. The possessor of a greenhouse will have no difficulty in securing a supply, and these remarks are not intended for him. Those who have not the aid of that luxury will find in the following hints something which may assist them.

Bulbs should be relied upon as far as possible to supply the window from January to April, for they bloom naturally at that season, and their great beauty renders them very desirable. Many exotics may be made to bloom at any time of the year, but Hyacinths and other spring bulbs must be cultivated in the season just mentioned or not at all. Directions have been fully given for the potting of these, and it is only necessary to remark, that when the pots or glasses become filled with roots, they may be brought to more light and heat. A succession can thus very easily be kept up, and the flowering season prolonged. Any intelligent florist will point out the kinds best adapted for window culture, and also those which are earlier or later than

others. One of our friends recently confessed that late Tulips failed with him in pots. No doubt of it; they are utterly unadapted to pot culture, and any gardener or seedsman would have given that information had it been asked.

Roses which have been stationary for some time, if kept in a frame or a window, will break out and bloom during the winter. Mignonette, in pots, should have all seed-vessels taken off as they appear, and the long straggling shoots should be shortened. If you have no Neapolitan Violets, a few pots should be procured, which must be kept in a frame, one or two being brought to the window as the bloom expands. The writer took up some plants of the double white and purple violet last autumn, and they flowered well during the winter. What can be more delicious than the fragrance of Mignonette or Violets when the frosts are on the ground, and all exterior vegetation is buried in snow? It is worth some sacrifice to procure such a luxury, on account of the pleasant remembrances excited, as well as for the exquisite perfume, made more acceptable by the waste which reigns around.

Where cuttings of Verbenas and Scarlet Pelargoniums were made early, many of them will be now flowering, and will form very pretty window plants. The cutting frame should be looked over with this object in view, and the strongest plants selected for the purpose. A few Camellias of moderate size may be advantageously trained in-doors, and will bloom well. Of course they demand every degree of attention in such circumstances, to counteract all the disadvantages

of their situation. Many other plants might be mentioned, but taste and convenience must regulate the choice. If the desirableness of having flowers in bloom all winter is acknowledged, there will be no serious difficulty in gratifying the wish.

IV. ROSES.

Those amateurs who wish to form a collection of these beautiful flowers, or to increase their present stock, should do so before October is past, that the trees may become established before winter. Some thought should be given as to the sorts most suitable to the size of the garden, and also as to the longest duration of bloom. The varieties which only flower once should be mixed with the perpetuals, otherwise the garden will present a dull appearance during the greater part of the summer. Although the last few years have added so immensely to the capabilities of the Rose garden, by the introduction of the kinds which produce their flowers from summer to autumn, it is surprising how few persons, comparatively, are aware of this. Many admirers of flowers have visited my garden this season, and have expressed surprise at the autumnal Roses in full bloom. There is consequently a market to be created of indefinite extent for this flower, and it cannot be out of place to urge all gardeners to understand what their deficiencies are, that they may be supplied.

I have now before me a little book entitled, "Descrip-

tive Catalogue of Roses cultivated for sale by E. P. Francis, Hertford, in three parts: Part I., Roses that flower in May, June, and July. Part II., Roses that flower from June to November. Part III., Climbing Roses, in two divisions." From June to November is a large portion of the year, and to have Rose blooms all that time must be a desideratum to every one possessed of a garden. The Roses which bloom in May, June, and July are Moss, Provence, Gallica, Hybrid Provence, Hybrid China, Hybrid Bourbon, Belgic, and Damask. Here is a field to select from, and if from the catalogue you mark the contrasted colours, two or three dozen from this class will make a fine show. The Roses which bloom from June to November are Damask Perpetual, Hybrid Perpetual, Bourbon, China, Tea-scented, Noisette, Rosa rubifolia, and Austrian Briars. The very names seem redolent of beauty and fragrance, and will tempt your hands to your pockets if you are people of taste and refinement, and have anything to spend. For beds or for borders, here is as great a supply as can be wished. Then the climbers are equally plentiful for stakes or walls, early and late; so that even if your garden is now destitute of Roses, it may become a Persian paradise before the close of another year.

There is a feature in the culture of Roses in nurseries which has been recently introduced; it is the keeping many varieties in pots, so that a garden may be stocked at any time without the plants suffering by disturbance of their roots. About 200 sorts are marked in Mr. Francis' Catalogue as being thus kept ready at all times. This is a great advantage, for plants often

get their roots so dried in a long carriage as to be greatly injured; so much, indeed, is this the case, that they often do not recover. If you receive a collection in pots, the roots may be loosened and spread out a little, to counteract the spiral direction the pots have given them, and then their removal will not be perceptible. If you cannot rely on your own judgment in selecting sufficiently distinct varieties, take the advice of some experienced Rose grower. At all events lay in a moderate stock, that your laborious energies may be expended on something worthy of them.

The following remarks, appended to the catalogue just noticed, are so excellent that they will render any observations of mine unnecessary :—

"*In cultivating Roses*, nothing delights in rich soil more than this handsome flower. They should always be planted in a composition of stiff loam, rotten dung, night soil, and leaf mould. Where Roses have grown strong after three or four years' standing, they may be taken up, the ground well renewed, the roots close pruned, as well as their shoots very much thinned, and then planted in the same situation—they will then produce as fine blooms as when first transplanted from the nursery. This should always be done in the early part of November. Roses bloom well the first year after being transplanted, if carefully attended to. They should, when transplanted, have a strong stake attached to each standard to preserve them from the wind moving them, and then well mulched round. During the winter, the ensuing spring, and summer, they should be plentifully supplied with liquid manure.

"*In Pruning Roses*, the observations made in last year's catalogue may apply to the present. With the exception of Teas and Chinas, December and January are considered the best months for pruning; many sorts, such as the Hybrid Chinas, Hybrid Bourbons, with some of the strongest growing Noisettes and Bourbons, require very little pruning; about every third year they should be pruned in close, so as to make them produce new wood, and to prevent the plants getting too old and ugly in appearance. The Persian Yellow requires merely to have just the top of the shoots taken off, it being found to flower only on the last year's wood. Another excellent plan for Standard Hybrid Chinas, many of the Pillar Roses, and Standard Climbers, is to prune them in quite close just after they have done flowering: they will then produce new shoots the same summer, and flower abundantly the next season. February and March are considered the best months for pruning Teas, Chinas, and Bourbons.

"*For Protecting Roses*, when planted out on their own roots, such as Teas, Chinas, and Bourbons, dry Moss, Fern, or small Spruce Fir boughs, may be stuck round the plants, which will very much protect them from sharp frosts; also, the crown of the roots should be covered with rotten manure early in December, which should be dug in the following spring."

V. VINES.

One autumn, on the 25th October, I cut from a Vine out of doors a bunch of black Grapes weighing three quarters of a pound, perfectly ripe and covered with bloom; some of the berries were nearly an inch in diameter, and the whole bunch was a very beautiful spectacle. The flavour was delicious. It was taken from a Vine covering about nine square yards, which produced that season nearly a hundred bunches. I believe the variety was the Black Hamburgh. As an opinion is very prevalent that it is of little use growing Vines in the open air, because of the difficulty of ripening them, I think it is worth while to give some details of this one, which was that season a source of so much gratification to my family. The coldness of the previous summer renders the case more worthy of attention, for if Grapes were produced fine out of doors that year, we never need despair. I should say that only those bunches ripened fully which were close to the wall, and covered with leaves; those which were not nailed in and more exposed were less fine. The bunch in question had been in a muslin bag for the last month to protect it from wasps.

This Vine grew against a dwelling-house with a due southern aspect, and which, being on an eminence and far from all other buildings, had the earliest morning sun. No preparation was made for its reception, when five years ago it was merely "stuck in" to a flower bed by which the front of the house was adorned. The soil

was a hazel loam, and where the Vine was planted was very shallow, not more than a foot deep, and resting on a brick archway, which surrounded the basement of the house, to preserve the lower buildings from damp. The roots of the Vine must have travelled two yards before the free deep soil was arrived at, and therefore I presume its principal sources of support must have been in the arid mould near to the stem. In summer this mould was so parched that it appeared like dry dust to the depth of several inches, and was quite warm; the Vine was thus in the same situation as I have heard it delights in in its native climates. Perfect drainage and a high temperature below the surface of the soil were here secured, and I presume it was to these conditions I owed my ripe Grapes. Here was no expensively formed border, and very little manure had been given since the time of planting. The previous summer I dug small holes round about the stem, and deluged it with diluted cow-dung. In August I also mulched it with the mowings of Grass, because I fancied during some hot days the leaves flagged.

As few things are more pleasing in a garden than a supply of Grapes, and as but comparatively few persons can afford the expense of time and money demanded by a Grapery, any information respecting Vines out of doors must be acceptable. I know large crops of fruit are secured often near London, and in the southern parts of England; but in other parts, as in Bedfordshire, it is considered almost vain to expect fine Grapes, except in houses. I had other Vines against walls in

different parts of the garden, but none succeeded like this one. The aspect certainly was as fine as possible; but I think the accidental advantages of the subsoil had much to do with the matter. I remember at a horticultural show hearing some first-rate gardeners conversing about Vines, and one gave it as his opinion that the temperature of the roots was everything, and that if that was provided for properly, there would be plenty of ripe Grapes. Amateurs who wish to grow Vines should therefore make a survey of their premises, and endeavour to secure these conditions. A low, damp, undrained situation never can succeed, and Nature and Art should both be laid under contribution to gain a warm wall for the branches, and a dry porous soil for the roots.

The whole art of pruning the Vine is dependent on the physiological fact in its history, that it only produces fruit on the wood which is the growth of the previous year. The knife must therefore be so used as to get rid annually of old branches, to be replaced by new ones. Care must be taken not to have too much wood, and perhaps eight inches apart is the medium distance to be observed in nailing in the branches, which must be shortened according to the ripeness and strength of each. About four or six eyes will be enough to leave, unless the stem is very strong.



nal economy of vegetable productions, they act
e part as quacks in medical matters; they give
r cut off a limb with a facile reliance on chance,
to the *vis medicatrix naturæ* to accomplish what
norance leaves undone.

aming it is understood that, *cæteris paribus*, a
r will be a much more efficient workman if he
ainted with vegetable organisation and physio-
we shall do our readers a service by recommend-
their use the following productions: 1. "An
duction to Botany, by John Lindley, Ph. D., with
opper plates and numerous wood engravings, in
volumes—Longman & Co." The objects embraced
Dr. Lindley are stated in the preface to be, "Or-
ography (Book I.); or an explanation of the exact
icture of plants; a branch of the subject compre-
nding what relates either to the various forms of
sue of which vegetables are constructed, or to the
ternal appearance their elementary organs assume in
state of combination. It is exceedingly desirable
hat these topics should be well understood, because
hey form the basis of all other parts of the science.
Vegetable Physiology (Book II.); or the history of the
vital phenomena that have been observed both in plants
in general, and in particular species, and also in each
of their organs taken separately. It is that part of the
science which has the most direct bearing upon practi-
cal objects. Next follows Glossology (Book III.); re-
stricted to the definition of the adjective terms, which
are either used exclusively in Botany, or which are
employed in that science in some particular and unusual

sense." It will be seen that the work does not embrace systematic botany, that being treated of by Dr. Lindley in other publications. It furnishes all that information which we alluded to at the commencement of this paper, as being necessary for those who would carry on gardening operations on the most scientific, and therefore the surest principles.

2. "A Class Book of Botany; being an introduction to the study of the vegetable kingdom, by J. H. Balfour, M.D., with upwards of 1800 illustrations. Edinburgh, A. & C. Black, 1854." Dr. Balfour is professor of botany in the university of Edinburgh, as Dr. Lindley is in that of London, and this work gives in one volume what Dr. Lindley has more extensively discussed in many separate works. While, therefore, those who aim at becoming scientific botanists will probably have recourse to the latter, Dr. Balfour's book will more compendiously assist the amateur gardener. As stated by the author, "the *first part* embraces vegetable organography, or a description of the tissues of which plants are composed, and of the various organs which are concerned in the processes of nutrition and reproduction, without an accurate knowledge of which it is impossible to make progress in botanical science. The *second part* includes vegetable physiology, or the consideration of the functions which plants perform in the living state. The *third part* has reference to the classification of plants—the essential characters of the classes and orders being given, along with the properties of the more important species, especially such as are used in medicine and the arts. In the *fourth part*

the distribution of plants is considered in a geographical point of view; and in the *fifth part* the subject of fossil botany is discussed. Directions in regard to the examination and preparation of plants for the herbarium, museum, and microscope, and an explanation of the common botanical terms, are added as an appendix."

By means of the very numerous engravings furnished by both these works, the most difficult parts of the subject are rendered as clear as possible. We would advise learners to follow the course marked out step by step, and to test the statements as far as possible by the aid of a microscope. A few months hence the benefit of devoting a few hours a week to the subject will be felt by the gardener. He will take a higher interest in his work, and feel more certain in his various operations. Botany has often been considered as a mere amusement for leisure hours, but the perusal of such books as these will exhibit its higher claims. As Dr. Lindley observes, "It is by no means, as some suppose, a science for the idle philosopher in his closet; nor is it merely an amusing accomplishment, as others appear to think. On the contrary, its field is in the midst of meadows, and gardens, and forests, on the sides of mountains, and in the depths of mines—wherever vegetation still flourishes, or wherever it attests by its remains the existence of a former world. It is the science which converts the useless or noxious weed into the nutritious vegetable; which changes a bare volcanic rock into a green and fertile island; and which enables the man of science, by the power it gives him of judging how far the productions of our

climate are susceptible of cultivation in another, to guide the colonist in his enterprises, and to save him from those errors and losses into which all such persons unacquainted with botany are likely to fall. This science, finally, it is, which teaches the physician how to discover in every region the medicines that are best adapted for the maladies prevalent in it; and which, by furnishing him with a certain clue to the knowledge of the tribes in which particular properties are, or are not to be found, renders him as much at ease, alone and seemingly without resources, in a land of unknown herbs, as if he were in the midst of a magazine of drugs in some civilized country."

As the short days of autumn and winter will leave fewer opportunities for active exertions in gardening, we would earnestly recommend the amateur to acquire a knowledge of botany.

VII. AUTUMNAL MANAGEMENT OF THE GARDEN.

Great attention is requisite at the present season to prevent work accumulating, and to keep up that neat appearance so important when beauties begin to fade. In spring we are all alert under the influence of hope; the winter is past, and the genial influences of nature animate ourselves, and urge us to fresh exertions. But in autumn our spirits flag; when frosts nip our Dahlias, and heavy rains disfigure more hardy productions, we

are apt to turn away disgusted from garden labour. The consequence is, that weeds accumulate, and with them slugs and other insects. Grass-plots are disfigured and spoiled by decaying leaves, and unsightly stems denuded of all vegetation rustle and creak in the blast. A fortnight's neglect is enough, in October and November, to produce dismal results; and, therefore, however unwillingly, work should now be industriously performed. Yet, surely there are some pleasures in gardening even in the weeping and dreary season. See how the robin follows the spade, prying in the upturned mould for its food! What glorious hues accompany the setting sun, and how the whole frame glows with a healthy warmth from the decreased temperature! Let every amateur resist the disposition to leave his garden in a state of desolation during the winter months, and he will be rewarded by all the labour he can bestow upon it.

The Kitchen Garden should be kept free from weeds, which make surprising progress in the autumn. All decayed crops, such as Peas and Beans, should be taken up at once, and the ground thrown up in trenches if not wanted for planting. Growing Broccolies and Cabbages should be hoed up as high as possible. Celery should be earthed up a little at a time. Herb beds may be looked over, and the withered flower stalks cleared away. Raspberry plantations may be arranged for next year, leaving two or three strong canes to each pole, which should be examined, and, if weakly, exchanged for another. Carrots may be removed, although it is not necessary; Parsnips do better in the

ground for some time to come. In short, all should now be done that can be, leaving nothing which is important, lest long wet weather should render its performance impossible. Wall trees require pruning and nailing in, and any planting you intend to execute this season should be determined on, and finished as soon after the fall of the leaf as possible.

The Flower Garden, with management, may look gay for a month or six weeks yet. The early frosts which are often severe in October, may not return again for some time, and Verbenas and scarlet Pelargoniums will probably be more splendid than ever. Let activity be displayed in promoting neatness, and your garden will be an attractive spot at all seasons. The Grass-plots should receive a close shaving, and, unless the weather is very warm, they will not require mowing again. Go round all your beds, and remove everything which has done its work, especially keeping leaves and weeds from accumulating. Dahlias injured by frosts may be looked over, and the most unsightly branches and blackened leaves being removed, some good blooms may yet be expected. Rose trees should have the dead flowers cut away. In this spirit of determination against all litter and damp, you will perpetuate the beauty of your garden, and secure for it a deep interest in the estimation of yourself and friends.

Now is the time to turn over the accumulations of leaf-mould collected last autumn. Let the heap be removed by a fork, and every portion well shaken before put into a fresh place. It will be thus brought into a

fit state for use. Do not neglect to save all similar materials for a future occasion. Everything not fit for fuel should be brought together, and allowed to lie for twelve months. If your frames require glazing and painting, not a day should be lost. To be visited with continuous rains, and not to be prepared for the protection of plants to which damp must be injurious, is the height of folly.

November.

"The flush of the landscape is o'er,
The brown leaves are shed on the way,
The dye of the lone mountain flower,
Grows wan and betokens decay.

All silent the song of the thrush,
Bewilder'd she cowers in the dale;
The blackbird sits lone on the bush,
The fall of the leaf they bewail."—*Hogg.*

The Calendar.

Flower Garden.—Attend to the directions of last month, if any have been neglected. Frosts will probably render it necessary to clear up the garden, which will give an opportunity of digging in a little leaf-mould, or very rotten manure. During this process, regulate shrubby herbaceous plants, &c., so that the arrangement of the beds may be fixed for next year. Have protection at hand for pits and frames, but give air the whole day in fine weather. Protect half-hardy shrubs in the open air. Fuchsias may have the soil raised in a conical form above their crowns. This will generally be sufficient guard against frosts. Take up Dahlia roots.

Kitchen Garden. — A row or two of Peas and Beans may be sown for an early crop. Have some

loose litter ready to cover up the Celery rows, in case of hard frosts. Broccoli, Lettuces, and Endive may be taken up by the roots, and kept in a shed for some time, for use during frosts. Take up Rhubarb roots for forcing, and clear off and manure the old beds.

I. LAST WORDS ON BULBS.

Something has already been said respecting the great desirableness of cultivating spring bulbs in our gardens, as a mode of robbing several of the cold months of their sterility and desolateness. We return to the subject on account of its intrinsic importance. Comparatively few persons are aware of the exquisite pleasures early bulbs convey; for they are generally grown too meagrely to produce much effect. A bunch or two of Snowdrops and Crocuses, a few Tulips, and some degenerated Hyacinths, are all the bulbs to be found in most gardens, and these appear to come up more from accident than design. The blaze of beauty which may be secured by a liberal growth of these enchanting flowers is not often seen, and the conception being wanting, no effort is made to supply what is so easily commanded.

Now consider that from November to May, in ordinary seasons, there are but few flowers to grace our gardens, and that consequently that long period is often suffered to pass without an interest being felt in those floral pursuits, which, during the other months, have

so absorbed the attention. Yet, there is no reason why half this interval should be allowed to pass without flowers, and during the greater part of it, a display may be secured such as no other part of the year can furnish. Snowdrops will bloom in January, provided frosts do not bind up the soil; and even Crocuses will look very gay at the close of that month if the weather is mild. February is a grand month for both these flowers. March brings forward early Tulips, Hyacinths, Crown Imperials, and Narcissus. April is more liberal in all these, adding to the list, Fritillarias and late Tulips. This is the chief season for bulbs, and they continue to look beautiful until the middle of May. Thus, by a free patronage of bulbs, winter loses part of its dreariness, and a long season of intense interest and delight is secured, which, by neglect of these resources, will pass away with scarcely a charm.

Now, let us look at a good catalogue of bulbs, and see how we may expend a few pounds, so soon to be repaid with interest in the sunny days of spring. First, there are double and single Snowdrops, which, if planted about thirty in a clump, and allowed to remain year after year, may continue to bloom for a century; and who would be without a good stock of these early visitants—these pale yet elegant harbingers of spring? Next, we are invited by a tempting list of Crocuses, of which many varieties are raised from seed, and are marked in the catalogues. Ten established sorts appear conspicuous, a hundred of each of which may be procured for little more than £1. A thousand fine Crocus corms for little more than 20s.! how seldom is a floral

outlay so economic as this, especially when the hardy nature of the Crocus is considered, and its regular and certain increase. Then, for the more curious and the wealthy, fifty fine new varieties (twenty roots of each) may be purchased for 30s. Then come Narcissus and Jonquils of various prices, according to the sorts, of which the catalogue before us supplies twenty-four names. Mixed Crown Imperials may be had for 5s., and Fritillarias for 2s. a dozen.

But nothing is more enticing to the amateur than the part of a bulb catalogue devoted to Hyacinths and early Tulips—things which are cultivated in pots and glasses to adorn greenhouses and sitting-rooms, but which yield up their full beauties in the open air. Hyacinths are so numerous in colour and varied in price, that nothing can be said as to the choice which should be made. For beds, perhaps the mixed kinds are all that is needed. Of these there are twelve distinct sorts, namely, single and double dark red, light red, dark blue, light blue, white, and yellow. These can be purchased for 3s. 6d. a dozen, and will often contain some of the finest varieties. If planted rather closely, that is, one to a space of six square inches, the effect will be very magnificent. Early Tulips are very numerous, and some kinds appear in March. One hundred and two sorts of the single Tulips are enumerated in the catalogue, and one root of each may be had for £1 : 15s. Of the double varieties there are seventy-two kinds, to be purchased for £1. But the mixed early Tulips, which are about 10s. a hundred, will answer the purpose for planting in the open air.

A few miscellaneous observations on this interesting tribe of plants have occurred to the writer, and he presents them to his readers now, because the time is fast passing away when any advice on this matter will be available for the present season. Get all your bulbs and corms in the ground immediately. Look in the seedsman's window and be tempted for the last time this year. Resolve on what you will purchase, and pot or plant at once, inserting various kinds of roots in vacant and favourable spots. If you are a Tulip fancier of any experience, you will not need to be told how to go on; but if this is your first year, and you have a few good roots, let a little extra care be bestowed upon them. Choose a light soil, and plant about three inches deep from the apex of the bulb, covering with white sand as you proceed, and recording the names with tallies. Do not be too anxious about them, for they are almost sure to do well, and your care may be safely reserved until the leaves appear above ground.

Hardy bulbs will stand any amount of frost, provided they are not exposed to the light, and have been rooted in time. Some kinds will require a little protection, the Gladioli for instance; these should be planted somewhat deeper, and a few inches depth of leaf-mould may be placed over them at the surface of the soil. The tender kinds should be grown in pots, and turned out to bloom in the spring. Allied to these in their nature and treatment are the Ixia and Sparaxis, of which very splendid varieties are raised in Guernsey. These will stand our winters; but they bloom so early, and the flower is so delicate, that a

satisfactory display is seldom obtained in the border. If the amateur has never yet grown these plants, a few pots will highly gratify him. They may be grown in six-inch pots, about three roots in a pot. With good drainage and a light soil they are sure to do well.

Lilies are well worthy cultivation, and there are hardy varieties enough to make a splendid show. They will grow almost anywhere; but luxuriate most in a sandy soil. The Fritillaria must not be forgotten, being perfectly hardy, and coming into bloom so early in the season. The flower is very durable, and it is monopetalous, and therefore not easily injured by wind. A small bed of these is a lovely sight, and may be very cheaply procured. Of a universal favourite, the Snowdrop, I regret I am obliged to confess that it is very difficult to propagate, at least in my own experience. The bulbs appear in many cases to decrease in size and at last to vanish altogether. I have been informed by a nurseryman that the supply is very limited; and I should much like to read the opinions of growers on the cause of this. In some old orchards I have seen immense clusters springing up among the grass, which have been there (tradition says) for centuries. It is an invaluable little darling, and one can scarcely conceive of any garden having too many of them.

If you have more Hyacinths than you want to plant in the garden, I would suggest a plan which has been tried with fine effect; that is, to put six bulbs of various colours into large pots, say nine-inch, and then to bury them until the spring, when they may be taken into the greenhouse or sitting room. The cheap mix-

tures will do well for this purpose. These bulbs can be grown in baskets of moss with excellent effect. The baskets may be varied in shape and size, according to the taste of the amateur; they must have the lower parts impervious to water, either by being made of metal, or having a china vessel put in of the right size. This must be filled with sand, covered with a layer of moss, on which the bulbs are to be placed. If rooted before put in, the plants will be more sure of a regular advancement. The whole should be covered with the best specimens of moss which can be procured, and a moderate degree of moisture kept up in the whole mass. If the colours are properly varied, these baskets will prove very beautiful objects. Hyacinths which have been in the ground a month or two may be removed for forcing, either in pots or glasses, care being taken not to injure the roots in taking up.

Although the Ranunculus cannot be classed with the tribes now treated of, yet this is the place to recommend that a few common sorts be now planted for very early bloom. The turban sorts are adapted for this, and should be planted immediately. Let the soil be light, and not retentive of moisture, and plant the roots a little deeper than for the spring growth. In a favourable season these will bloom in May, and make a valuable addition to the border flowers.

If you have Hyacinths and Tulips in pots, ascertain if any are well rooted, and if so, bring them in for forcing. Keep them close to the glass as soon as the leaves appear, and let water be liberally supplied. Flowers may thus be expected by Christmas.

II. PRESERVING PLANTS IN WINTER.

Nothing has more discouraged the cultivation of flowers than the supposed difficulty of preserving them in winter; and as this apparently formidable obstacle disappears as the amateur acquires experience, I shall endeavour to detail some of the methods I have employed, and their successful results. Of course, my remarks are intended for those who garden on a small scale, and who have not greenhouses for winter protection. At the same time, the principles of the treatment about to be described will apply to the largest collections, and may be of service to all whose object is to secure the beauties of the spring and summer from the desolations of winter.

Those whose stock of flowers consists of a few greenhouse plants, which they have cultivated in windows, have a very easy task to perform in protecting their favourites, as far as frost is concerned; for a very small amount of care will suffice when the plants are in a dwelling-house. The temperature of an occupied sitting-room will always be sufficiently high to keep out the frost in the day time, even if the plants are close to the light, and they may easily be removed in the evening to that side of the apartment which is furthest from the window. If the amateur has a large number of plants (young Pelargoniums, for instance) arranged on shelves close to the window, to remove these would be troublesome, and they may therefore be allowed to remain in their places in ordinary frosty weather, the

precaution being taken to interpose the blind between them and the window. I once preserved 200 plants in good health through a severe season, in a room having only one large window, which admitted a good deal of sun. Some of the pots (which were all small 60's) were placed on narrow shelves, ascending to the top of the window, and as near the glass as possible; the others were set on a table. An Arnott stove was lit when required either by very damp or very cold weather; air was given as often as possible; the whole collection was often moved, that light might be equally dispensed, and advantage was taken of mild rains. I succeeded in preserving the whole, without any sickly growth being developed, and was rewarded by having an abundance of strong plants for bedding out in the spring. Most of these were Pelargoniums.

Many plants may be more summarily dealt with. Cactuses and Scarlet Pelargoniums will do well in any dry cellar, provided no water is given them. The latter, when taken up from the flower-garden, I have preserved by shaking off the soil, and hanging them, root upwards, in a shed or coach-house, from which frost could be excluded. In the spring they were found in full possession of their vital powers, and on being trimmed and potted, made handsome plants. In all he cases to which I have alluded, it will be seen that care and forethought are the requisites demanded of the amateur. Attention must not be remitted for a day. I have always found that more plants are lost in the winter by damp than by frost. Much water, therefore, must not be given; indeed it should be altogether with-

held so long as the plants do not flag. A plant in a moist growing state will yield easily to frost; while, if it had been kept dry and dormant, its powers of resistance would have been great.

But no plan of preserving plants from frost, independent of a greenhouse, is equal to a well-regulated pit or frame in the open air. I have tried this in various ways and always found it succeed, if properly attended to. At the present time, all my plants intended to be put into the borders next year, or brought into the house, are in a large two-light frame, the management of which I will endeavour to describe. The frame stands about two feet from the ground, sheltered by a south wall, on an exhausted hot-bed, on which Cucumbers were growing in the spring. The mould of this bed having been kept from rain in the early autumn, at the close of October the pots were sunk into it up to the rims. A double light was then put on, by which wet and frost are more effectually excluded, and in the following December the soil around the pots was quite dry. Around the frame long stable dung is piled up about eighteen inches in width, and level with the top. Over the whole an old carpet is thrown when necessary; and I have no apprehension that I shall lose anything if damp does not defeat my efforts. Every day when it is not frosty, air must be freely admitted, and dead or mildewed leaves must be carefully removed. When frost sets in, two or three extra mats may be laid on, and the whole kept on till a thaw takes place. On no account remove the coverings until at least a day after the frost is gone. This is a very important rule,

for the admission of light may be fatal if any of the leaves should be frozen. When plants are found frozen in windows, &c., let them thaw in a dark cellar, and they will often sustain no injury. In this way I have preserved Pelargoniums, Calceolarias, Verbenas, Hydrangeas, &c.; and the freshness of the whole collection after the winter has passed away has always been encouraging. Ordinary greenhouse plants may therefore be preserved by every one during the hardest winter.

III. DAHLIAS.

If not done already, the roots should be taken up and stored away until the time for starting them arrives. Flowers, however valuable, are apt to be neglected when their beauty is over, and cold dreary autumnal days induce the amateur gardener to remain in-doors; this is particularly the case with Dahlias, which are allowed to remain very late before any care is bestowed upon them. They thus become the victims of hard frosts, which injure the crowns, and prevent them from shooting in the spring. In October the crowns should be protected, either by hoeing the soil round the stems, or placing litter about them. Before the flowers are all faded, the names should he examined, for sometimes damp obliterates them, or the tally may be lost. It is vexatious to find, on taking up a root, that no name is attached to it; obliging you either to throw it away, or run the risk of carefully tending a variety not worth

growing, or having more of one sort than you wish to grow next year. An inspection of the plants before their beauty is all fled will prevent this, for if the name is gone you will be able to keep a description of the flower.

The proper mode of preserving the tubers during the winter does not seem to be generally understood, since amateurs are continually complaining that their stock is partly or wholly lost at the time for propagating. Where there is a greenhouse, the roots are generally safe under the stage, placed in a heap, and covered with a mat or some straw. They have also been kept in a sound state in a stable, or any out-building secured from frost. Others have found that, when left in the ground, and properly covered up, Dahlias are generally in a healthy state in the spring. One year I pitted mine, like Potatoes, and found them in good order, except that some slugs had got in, and feasted gloriously on the tubers, crowns and all. This catastrophe might have been prevented by filling up the interstices with dry ashes. I have no doubt that if the stems were cut off to within three inches of the ground, and some ashes placed around them in a conical form, and then some litter spread on the surface, the roots would be found in fine condition in the spring. But this is an objectionable practice in many respects. It leaves the garden in an untidy condition, and takes up room which might be properly occupied with spring bulbs.

It is doubtless the case that the roots of Dahlias are less dependent on the place they occupy in the winter

than on certain conditions in which they are stored away. I believe they are more frequently injured by early frosts than is imagined, for the effects of such injury do not manifest themselves immediately; all appears sound at first, but the results become evident in a general rottenness before the winter is past. If the tubers are quite sound when taken from the soil, and have not been allowed to become glutted with heavy and continued rains, it will require but little care to protect them. The mould should not be shaken off; all external moisture should be dried off by exposure to the sun and wind, and the tubers in this state may be piled together with the crowns upward. The collection should be looked over once or twice during the winter, lest slugs or other vermin should be slyly committing ravages. Be sure you consult the "Calendar" in the early spring, for there is a tendency in gardeners not professional to delay striking their Dahlias too long. In our climate, where frosts sometimes occur in September of sufficient severity to destroy the Dahlia, this flower should be in a strong and advanced state for planting out as early as can safely be done.

IV. GENERAL TREATMENT OF THE SOIL PREVIOUS TO WINTER.

With the cessation of the attractions of summer, the interest of many in their garden ceases, and the whole is left wild till the approach of spring gives a new im-

petus to their exertions. Kitchen gardens are often left covered with weeds, and are only cultivated as far as existing crops require it; and the flower department is allowed to remain bristling with dry stalks for months to come. This is bad taste and bad policy. It must be bad taste indeed to add to the desolateness of winter by the neglect of neatness; and bad policy to allow insects to increase undisturbed, and to deny to the soil the influences of fresh air and frosts.

Every decayed and decaying stalk and leaf should now be sedulously removed both from the flower and kitchen garden, and all weeds eradicated. Damp and mouldiness do their work effectively in the midst of withered vegetable matter, and slugs increase at leisure in the green retreats of Grass and Sow Thistles. In the autumn many gardens have a plentiful crop of weeds; let them now be pulled up and mixed with stable manure, that the mass may ferment, and roots and seeds be destroyed. To clear the ground is the first process; the second is to loosen and throw up all uncropped spaces. This should be done in ridge and furrow fashion, or, as it is called, in hacks. But if time and labour cannot be spared for this operation, let at least every vacant portion be turned over with the fork, and the surface left as rough as possible. The benefits of having the soil thus open during the winter are immense, and cannot be neglected by any careful gardener. The rains carry their fertilising qualities into the soil; the frosts break up the clods, and still further impart a power of fruitfulness. Insects are more readily destroyed, and a pulverised

condition being secured, crops can be got in earlier in the new year. The writer had to wait a full month one year before he could sow Onions, through the previous neglect of the soil. While his neighbours were raking down their ridged land in fine condition, his own was like moist clay, and the season being a wet one, nothing could be done. By all means get hands enough to throw up all your unoccupied soil, and the future advantages will more than repay you for any extra expense.

The flower garden should be treated according to the same principles, and a roughness of surface be given it with a fork. It may be objected that this operation is opposed to that neatness which it is desirable the flower garden and pleasure ground should always exhibit. Now the appearance of a garden forked over is not so bad as is supposed; besides, if necessary, the unsightliness must be submitted to for a time. Finely raked beds leave the soil too close, and the flowers to be afterwards inserted, as well as the perennials remaining in the beds, will receive benefit from an admission of air and frost. All leaves and stalks, everything indeed but perennial roots and seed-vessels, should be conveyed to a heap, to remain till this time next year. The former accumulations, if you are fortunate enough to have any, will now be in a fit state to return to the flower-garden in the form of leaf-mould; a layer being applied previous to the operation of forking. In digging over the flower-beds beware of the bulbs.

Grass plots demand attention now. A last mowing should be given them, after a careful sweeping and

rolling has kept down wormcasts. A rolling on a dry day occasionally, through the winter, will level irregularities of surface, and be otherwise beneficial. Trees and shrubs to be planted or removed should be put in their destined places at once, if not already done.

V. ON LAYING OUT A KITCHEN GARDEN.

Supposing your ground is extensive enough to allow you to grow your own fruit and vegetables with advantage, it will be better to devote a separate portion to this purpose, than to mix flower-garden and kitchen-garden in one, as the custom was with our ancestors. There is, indeed, a certain charm in this union of the useful with the sweet, especially with old-fashioned people, who were accustomed to see gardens of this character in the days of their youth. The following description, copied from a popular work called "Tales by a Barrister," represents this union in a very pleasing manner:—"In the centre of a grass plot, seated in a garden chair, with their feet resting on a rustic table before them, are two young men. Behind them is an old-fashioned residence of moderate dimensions, its bay windows, its antique portal and Vine-covered front breathing an air of quiet, undisturbed comfort, and suggesting a thousand pictures of happy peaceful days passed beneath its roof. Around the lawn spreads a garden, more remarkable for its bountiful produce than

for its arrangement—fruit, flowers, and vegetables growing together in emulous luxuriance, and forming what might appropriately be called a wilderness of sweets. Through an arched doorway on the left, you look into an orchard of Apple-trees, whose boughs, clustering with golden fruit, throw a deep shade upon the green sward beneath, excepting towards the centre, where a small space has, from time immemorial, been left open as a drying-ground."

Perhaps I have taken a course calculated to defeat my object by quoting this passage, which certainly presents a mixed garden in a very attractive light; but there are reasons of taste and of utility, which must speak loudly for each department maintaining a separate independence. As it regards taste, there can certainly be nothing desirable *per se* in the aspect of rows of Cabbages, or beds covered with Potato tops. But these objects are more pleasing, when in healthful maturity, than culinary crops in a state of decay, or than that blank appearance which must often be presented when the beds have nothing in them. Then the work of a kitchen-garden is less neat and cleanly than that of the flower-garden. Manure has to be rolled in, and vegetables must be cut in wet weather as well as on fair dry days. If paths are to be kept in good order, and a neat, cheerful appearance is desired all the year round, you must keep the kitchen-garden separate. I do not mean that all communication is to be cut off; far from it. I would have both gardens so united that a walk should extend round the whole ground, and every part be ac-

cessible to even a stranger. But still the flower department should have a character of its own, deriving an apparent extent from the kitchen-garden beyond, or adjoining it, without being disfigured by any of its more humble, though necessary operations.

Get as much wall as you can in the kitchen department, for fruit-trees; and, of course, borders must occupy the space close to them. Plan out your paths, having as many, and no more, as will allow an easy access to the various beds. To cut up a piece of ground into many compartments for vegetable growth, is unnecessary and wasteful. It is a good plan to arrange the paths so that one less seen than the rest may be used for barrowing dung, &c. Having settled the plan, let every portion, except the paths, be well trenched, and if necessary, drained. If the soil is good you may go three feet deep with great advantage. Do not take stones away, but let them be put in the bottoms of the trenches; that is, the larger ones, for you must on no account be anxious to have a fine sifted soil, as inexperienced gardeners so often are. A gentleman once saw his neighbour, at great labour and expense, sifting a large portion of his garden, that he might not be troubled with stones. He expostulated with him to no purpose, but Nature took the remonstrance into her own hands, for nothing would grow well after the operation. This is another reason why the flower-garden should be kept distinct, for if vegetables are grown in it, the eye is offended with coarse stony soil, which, after all, is most favourable to culinary productions. If the soil is very poor, you must

incorporate manure with it as you proceed. In fact, you want a good deep staple, as it is called, and you must by every means secure it.

Before planting fruit-trees, or, indeed, performing any operations of the kind, the soil must be allowed to settle. Arrange your trees so that when full-grown they shall not too much shade your ground. It is very common to commit an error here, for the eye cannot well allow for the space to be occupied by a flourishing fruit-tree. Hence some gardens are a mass of wood and foliage; crowded orchards, indeed, instead of kitchen-gardens. Have an eye to the future, that you may not be obliged, in your more mature life, to cut down your old favourites, lest they should, by too near proximity, injure each other.

VI. THE AZALEA.

At this gloomy season of the year we are often cheered by thinking of the treasures which are preparing to display themselves when a few weeks shall have brought more light and a higher temperature. The buds of forced Hyacinths and early Tulips are ready to burst their cells, and already a shade of purple or crimson or white gives an indication of what is to be. This is especially the case with the Azalea, whose stems are now covered with the buds which, in the spring, will form one mass of beauty. Some of this tribe are hardy

enough to stand our winters, and scientific management will probably acclimatise most of the varieties. At present it is by greenhouse culture only that the Azalea displays its charms, and our remarks will apply to that alone. Those who have a collection of these plants in the garden know very well that Nature must do more for them than they can. Their possessors may procure the right kind of soil, and select the hardiest descriptions, and have besides the advantage of the warmest spots of our island; but, after all, a cold wet spring may prevent their realising a good show of flowers. But by the skilful management of a greenhouse this disappointment may be avoided.

The Azalea is propagated by seeds for obtaining new varieties, or for stocks for grafting the finer sorts upon; by inarching or grafting, when the tender kinds may be strengthened by being united with those which are more robust; and by cuttings, which is the more common and expeditious process for raising young plants. A soil composed of peat and sand in equal quantities is the best, and the cuttings should be covered with hand-glasses until struck. The best time is when the parent plants are in the most vigorous growth, for the cuttings partaking of that vigour will more readily emit roots than when the vital juices are inspissated and comparatively motionless. When struck, the young plants must have every advantage of light and air, and frequent shiftings, to secure a vigorous development, until they come into bloom. The after treatment then divides itself into two parts, suggested by the distinction pointed

out by Nature between the seasons of activity and rest which all vegetation demands. As growth commences immediately after blooming, the plants should be repotted then, all the flower stems being cut off, to prevent the energies of vegetable life going for the production of seeds. The most appropriate soil consists of about six parts of heath mould, in which there is a large portion of vegetable matter, one part of sandy loam, and one of sand. Great care is requisite in potting, both as to the size of the pots and the disposition of the roots, which are very fine and of a hair-like texture. They must be disposed as equally as possible in all directions, that the spongioles may not be crowded together, but may absorb equally the matters requisite for the vigour of the plant. Good drainage must be secured, varying however according to the habits of the plants. Some are semi-evergreen, while others are decidedly deciduous; the former will require larger pots and more drainage than the latter.

During growth the Azalea, as is indicated by its native climates, requires great heat, and will obtain a full development only by plenty of sun, conjoined with artificial means of gaining due moisture of the atmosphere, such as syringing morning and evening. When the growth has attained its extent, more air must be given and the temperature lowered, to prepare the plants for summer exposure; they may then be placed in a cool greenhouse, or in a deep pit, until, the wood being fully ripened, they may by the middle of July be put on an open border of east or west aspect, safe from

the droppings of trees and cold winds. They may continue in this position until September, when the flower-buds will be formed, and the plants must then be removed to their winter quarters in a close Vinery or greenhouse, air being only admitted in mild, dry weather. Great care is requisite at this season in watering—the deciduous varieties requiring less moisture than those which are evergreen. In February the bloom will become more developed, and more air and water should then be given.

December.

"And all this uniform uncolour'd scene
Shall be dismantled of its fleecy load,
And flush into variety again.
From dearth to plenty, and from death to life,
Is Nature's progress when she lectures man
In heavenly truth; evincing, as she makes
The grand transition, that there lives and works
A soul in all things, and that soul is God."

Cowper.

The Calendar.

Flower Garden.—The directions for November and January will mostly apply to this month, according to the judgment of the gardener. The same observation will apply to the kitchen garden. Cleanliness and neatness should pervade both departments, and every preparation be made for the approaching spring.

I. EVERGREENS.

The present season of the year is a kind of *experimentum crucis* of the taste and foresight of the possessors of gardens, especially small ones. It is easy to

make a plot of ground look well in the absence of John Frost; but when that cold-blooded man begins his operations, beauty, which is only skin deep, will speedily disappear. Nothing can be more striking than the contrast between some gardens in September and the same in November. In the former period they literally glow with the beauty of Dahlias, Fuchsias, Calceolarias, Verbenas, and Scarlet Pelargoniums. In the latter month they exhibit the most meagre desolation. Even if the ruins of the cold have been removed, and the broom has done its best to make the garden *simplex munditiis*, the change is still very remarkable. What are called fanciers are sad hands in this way, since they too often neglect the general appearance of their gardens. Caring for nothing but concentrated beauty, in the form of a Tulip bed or a collection of Picotees, when these favourites are withdrawn, their domains are as innocent of verdure as an Arabian desert.

Such is the garden of those who have not the bump of picturesqueness, or a taste for general effect. How different is the appearance presented at this season of the year by the grounds, whether large or small, of those who have an eye for natural beauties in winter as well as summer. Now all this difference is produced by a judicious use of Evergreens. As the objects contemplated by works on floriculture is to combine good taste with skill, the present paper will be intended to subserve this important purpose. This is the proper time for making alterations in the general arrangement of your gardens. I hope to persuade some of my

readers that winter may be made interesting and delightful, by availing ourselves of Nature's varied riches. The most desolate spot can, on this side Christmas, be made to assume the features of verdure and pleasantness, without interfering with beds intended for florists' flowers; and all seasons can thus be laid under contributions for "wreaths and posies."

And first, what garden should be without a portion of well-shaven and velvety Grass, which, green all the year round, is specially green among the russet hues of winter. This is Flora's mantle, found everywhere, and always pleasing to the eye and heart. How conspicuous is the difference between beds of flowers cut out of turf, and others surrounded by gravel. Grass, well cultivated, will heighten the beauties of a garden in summer, and confer upon it a double charm in winter. By all means, then, introduce as much turf as you can, and incur extra expense and labour to have it good. Almost any Grass may by care and constant mowing be brought, in time, to some degree of fineness; but it is far preferable to have it good at first. It should rest on a hard subsoil, and be very mathematically level. It is common to lay the turf on chalk or brick-rubbish, and perhaps, to secure fine Grass, a very rich soil should be avoided.

In connection with the Grass-plot, introduce as large a variety of Evergreen shrubs as your space will permit. The Laurustinus is invaluable for small gardens, as its growth is slow, and it forms round compact bushes of great elegance. Its flowers are never looked upon without great pleasure, being intrinsically beautiful, and

set off by the green of the shrub, and the season of the year. Varieties of Arbor-vitæ, Phillyrea, and Ancuba japonica will furnish every shade of green requisite for effect. Let all your shrubs be taken up under your own superintendence from the nursery-ground, with the roots uninjured, and as much earth as possible adhering to them. Tread the soil well in, and tie them to stakes, if large enough to be blown out of their places by the wind. You will have the benefit of these shrubs immediately, and if they are well watered in the dry season of spring, they are sure to flourish.

I have often wondered that the winter garden is so neglected, capable as it is of being brought to a high degree of beauty, and being, when properly managed, confessedly so pleasing. Wild nature has its ornaments in the coldest seasons, and many vegetable productions are never seen to advantage till the deciduous trees are denuded of their foliage. When, therefore, art is brought to our aid, there is no reason why winter should not be highly attractive to the gardener, as indeed it is to all thorough amateurs. The almost talismanic power of variety, unknown in tropical climates, exerts its spell in these colder regions. Unbounded wealth and power once made ice tributary to luxurious greatness, and hyperborean frosts were compelled to exert their gelid sinews in the construction of a palace. Although the Russian Czarina did not probably intend her winter masonry to teach such lessons, we may look upon it as emblematical of the power given to all of us, of making the most unfavourable circumstances tend to

our convenience, and giving even the dreary months of winter an inexpressible charm.

> "I saw the woods and fields at close of day—
> A variegated show; the meadows green,
> Though faded; and the lands, where lately waved
> The golden harvest, of a mellow brown,
> Upturn'd so lately by the forceful share.
> I saw far off the weedy fallows smile
> With verdure not unprofitable.—*Cowper*.

II. OUT-DOOR PROTECTION FROM FROST.

There are many productions in the flower-garden which occupy a rather dubious position between those which are hardy or tender, and to these the best care of the gardener should be given. It is undesirable to load pits and frames more than absolute necessity demands, on account of the great trouble entailed by the operation; besides, we should aim at training plants to bear the severity of our winters. Ascertain which roots or shrubs may be left to themselves, which will require protection in frames, and which are doubtful. It is in reference to the latter class that I propose to offer a few observations.

In mild winters the most tender Roses will sustain little injury, even if fully exposed to the weather; the same may be said of Wallflowers and similar plants; but a severe season will disfigure or kill some of these, and therefore precautions must be taken. But protecting must not be begun too early. I once saw a garden

strangely metamorphosed by conical piles of straw and short dung either tied round growing stems of Fuchsias, &c., or laid at the roots of other things presumed to be tender. Now this was done before any frost had appeared, and with the thermometer above temperate. This is taking time by the forelock in a wrong sense, for all wrapping up is to be avoided altogether if possible, and only to be resorted to in the last extremity. If a little care is taken to have protecting materials in readiness, you may safely wait for a first frost, which rarely does much injury; and then, if the day indicates the recurrence of the dreaded visitor, proceed with your operations. Bear in mind that even this should not be done till the middle of November, for frosts before that time are generally innocuous in reference to the tribes of plants I am now speaking of.

If it is desired to protect roots, conical heaps of some dry substance may be used. I believe most things will do well with this treatment. If moss is abundant, and your garden not large, some placed over these heaps, and fastened by little sticks, will make you more secure, and enliven the dulness of the beds. I am inclined to think that all Fuchsias would be more safe in this way than any other. It is certain that these roots often perish from various causes when taken up and stored away; while those accidentally left in the ground generally sprout in the spring. If about six inches of some protecting material was placed over the crown, I have no doubt the roots would be found in a fine growing state for spring forcing. If you have any tender

sorts not taken up, try a few of them, and record the result for future practice.

Roses, and other plants with woody stems, which run any risk, should have the soil banked up over the roots, and a little moss spread over them, as above directed. The branches may be tied up with straw. But the plan I adopt, and which, I think, is rather novel, is very preferable to any other I know of. I plant cuttings of Laurels, and other Evergreens, among the branches of the trees I wish to preserve, by which a gay and lively appearance is added to the security afforded. Of course, this can only be done where Evergreens are plentiful; but I would suggest that they should be grown for this purpose in every garden of any size. I have some round beds, about a yard and a half in diameter, filled with tender Roses, which I have just subjected to the following process:—Having a large number of layers of Laurustinus, well rooted, and not knowing exactly where to plant them to advantage, I have put them in these Rose-beds, in the spaces between the trees. I expect the following advantages from this plan:—First, the Laurustinus and Roses will mutually protect each other in severe frosts. Second, the mixture will have a fine effect when the Roses are in bloom. Third, the young Evergreens will be nursing up for a year or two as well there as anywhere else, and, when too large for the beds, may be permanently removed. I think this plan may be advantageously adopted in many cases, and young trees now located in the nursery made to increase the beauty of the garden, and afford protection to more tender objects.

Many frozen plants may be preserved from injury by preventing their being thawed by the rays of the sun. This may be effected by throwing mats over them, and not removing them till the frost is gone. Tender climbers against walls should have a mat lightly nailed over them. As a general rule, coverings must be removed as soon as possible from all growing stems, such as Roses, Fuchsias, &c.; if this is not done in mild weather they will push forth their buds prematurely.

III. PROTECTION OF KITCHEN GARDEN CROPS.

I remember that most amateurs grow vegetables as well as flowers, and that a few lessons founded on experience may not be unacceptable to them. If the flower garden is more attractive in summer, the kitchen department has much interest associated with it in winter, since we depend so much upon it for the supply of our tables. It is a serious thing for the cook to find all the culinary vegetables frost bound, and this calamity ought never to occur. At the first intimation of frost, a provision should be made in-doors of such articles as are ready to be stored away. I do not mean Potatoes and other roots, which, of course, ought to have been for some time out of the ground, but such productions as are ordinarily in a growing state at this season of the year. Cauliflowers, Broccoli, Celery, and Lettuces may

be kept in sheds in quantities sufficient to last a family through a frost of usual duration. With all these, care should be taken to avoid rottenness, and therefore superfluous leaves must be removed, and a cold dry atmosphere obtained. Turnips for kitchen use should be liberally laid up in this way, for a few weeks make little difference to their flavour when taken out of the ground.

If small supplies of these thin-skinned tribes have been planted near walls and in other sheltered places, it will be easy to keep them fit for use by employing hurdles and mats, or by laying straw thinly over them. Celery suffers much from frost, and it should therefore be earthed up almost to the top, and the sides of the trench may be covered with some long dung. Loose straw should be placed over the top leaves, as, if they are injured, the frost-bitten part will decay down to the heart of the plant. Take the first opportunity of earthing up all rows of Cabbages, Broccoli, &c. Do it with a fork, that the soil may remain as light as possible. Finally, throw up in hacks, as they are here called, or in deep ridges, all unoccupied ground. This is very important, not only because the soil is improved by the process, but on account also of the dryness which is thus secured in the early part of the year. After a frost these ridges will admit of being pulverized, and may be made available for early sowings. Two years ago this "hacking" system was neglected in my garden, and I suffered the greatest inconvenience from the oversight. The season being wet, it was not till the close of March that the needful work could be performed.

Sea Kale crowns should be covered with leaves to keep the frost away, that if you wish to begin forcing any of them, frost may not be an impediment. Rhubarb for early use may be covered a foot deep with light materials, and afterwards boxes or earthen vessels placed over the advancing leaves will hasten their growth.

IV. FRUIT TREES.

At this season, when flowers demand comparatively little attention, the time of the amateur is required by the fruit trees in his garden. Now that the year's growth is completed, and the foliage has fallen, the training of the tree should be attended to, in reference both to its bearing fruit and its future development. Everything of this kind should be done now, excepting the nailing of trees to walls, which physiologists say should be left as long as possible. Nature appears to confer benefits on trees by the constant motion of their branches in the wintry winds, and the process of nailing in, attended to early, deprives them of this. It has been thought that the tendency of wall-trees to canker is to be attributed in part to the unnatural position they are fixed in. It is as well, therefore, to leave this part of gardening labour until the spring, unless the garden is very large, when, of course, work must be done when there is an opportunity. All pruning, however, may be got under at once. Espaliers and standards should be carefully trained, and kept in an orderly and elegant

form. The latter are too much neglected in gardens. When young, standard trees receive supervision; but when they become older and more valuable, they are slighted. The centres become filled with small spray, by which air and light are kept from a large portion of the tree. The knife should be used to clear this away, and also to remove all dead branches. Any time when there is no hard frost will be favourable for this work.

The quarters devoted to Gooseberries and Currants should now be dug, a good coating of well rotted manure being mixed with the soil as you proceed. The bushes should now be pruned, if you can adopt measures to scare away birds from the buds, otherwise you had better wait until February. If a bush is now cleared from all useless wood, facility is given for the entrance of the winged depredators, and you may find your trees quite destitute of buds in the spring. By leaving them unpruned, an entrance is in many cases prevented, and, at all events, you can regulate your pruning afterwards by the state of the buds. However, it is better to get the work done now, and take measures to keep the birds away during the winter. A mixture of cow-dung, soot, and lime, put on with a plasterer's brush, I have found effectual; I am not quite sure that white worsted is not equally potent to keep off the thieves. If your stock is not very large, try both, and you will be sure of success. When the snow is on the ground, keep a look-out, and the occasional use of a gun will be beneficial.

In order to have a succession of young bearing trees of various kinds, the gardener should every year displace

some old worn-out subject for one just entering on its prime. It is bad management to allow all the fruit-trees of a garden to grow hoary together. Good gardeners are always shifting, and by this means they secure health and plenty. Raspberries, Currants, and Gooseberries allow of this treatment especially, since they so rapidly come to perfection.

V. OUR DUTIES TO GARDENERS.

We have lately read two admirable papers on the same subject, that of Martin Doyle, on the Treatment of Men and Plants, and that of one who signs himself "Falcon," on Surplus Labour. Both these writers nobly advocate the cause of the poor peasants and mechanics of our country, and suggest some remedies for the accumulating evils under which they now groan. The thing most required to ensure a melioration of the condition of the labouring classes is the kind sympathy of those above them, or a humane grappling by the rich of the difficult question, "What is to become of the poor?" "Falcon's" inquiry, "If the kingdom in 1848 cannot support the population, what is to become of the country in 1858?" is one of a heart-stirring character, which every one should endeavour to answer. The question is one of vital importance to our children, and better than all other political speculations will be a scheme by which surplus labour can find a market, and obtain for itself "food to eat and raiment to put on."

This subject, as exhibited in the two papers above mentioned, has so excited my feelings, that I propose to devote a page to it, and call the attention of the amateur to what he is able to do to alleviate the evil before us. I am not about to recommend that the man who loves flowers should devolve all his manipulations upon a servant; nor that the lady gardener should refrain henceforth from soiling her fingers. Labour is highly necessary for the higher and middle classes, and cannot be remitted with impunity; besides, the greatest pleasure derivable from flowers arises from actually cultivating them. My suggestion is, that every amateur should look round and see what work he can find for a man to do. I do not mean that he should grow his own vegetables which he now buys at the market, for that would only be taking with one hand what is given with the other. But let him inquire whether his income will not allow him to indulge further in his favourite pursuit, and by the erection of a greenhouse, or an extension of garden ground, be able to keep a man. If this is too high a flight, perhaps he could employ a journeyman gardener one or two days in a week, in order to secure a higher degree of neatness on his domain. If 100,000 amateurs were, without entrenching on other departments of expenditure, to have one day's work done per week more than they now have, it would be the same thing as giving constant employment to near 17,000 men.

The complaint is often made of jobbing gardeners that they charge too high and do too little work, making so many "straight backs," &c. &c. There is in-

deed much room for this charge, for I have known some of my friends sadly fleeced by those they have employed. Then, again, it is said these perambulating gardeners purloin anything they fancy, or which their other employers want. A lady told me the other day that her gardener allowed no bulbs to remain in her ground long; or, as it is popularly said, "they went through to the other side." No doubt there are lazy and dishonest gardeners, as there are bad men of all trades, but the remedy for this lies in our own hands. Choose your own man, and let him work as you direct him. Portion out his labour, and see that it is done, and if he talks "professionally," and spurns to be limited by your orders, then get one who will be more amiable. The matter is easy enough if you are determined to make it so; for you may even have some lad to clean your paths, and dig your ground; and if you find he succeeds, recommend him to your friends, and make a man of him.

While on this topic I will relate my occasional practice in reference to beggars. It is customary to turn vagrants away as being all alike impostors, or to dole out to them a promiscuous charity which often does more harm than good. Now I do not see how a good man can devolve all his kindness for the houseless wanderer on the operation of poor-laws, which must often neglect a worthy object in its gigantic operations. A little conversation and inquiry, which will leave you no poorer at the year's end, will often convince you that a worthy object is to be found among beggars. My plan is to have some rough work in an outlying

[illegible]

[illegible]

[illegible] fork, and was so amazed at the ease and rapidity with which the work was done, that I have never since [illegible] spade to be used when the former instrument

is available. A moment's thought will point out in what the superiority consists. The friction is only one-half that produced by the spade, and stones present comparatively no obstacle. A sandy soil, of course, could not be worked by the fork, but light grounds may. Another advantage is the lightness communicated to the soil when it is forked up. The fork, indeed, gives the land a subsoil ploughing, if the prongs are long enough. Let the amateur make the experiment himself, and I am sure he will seldom afterwards use the spade.

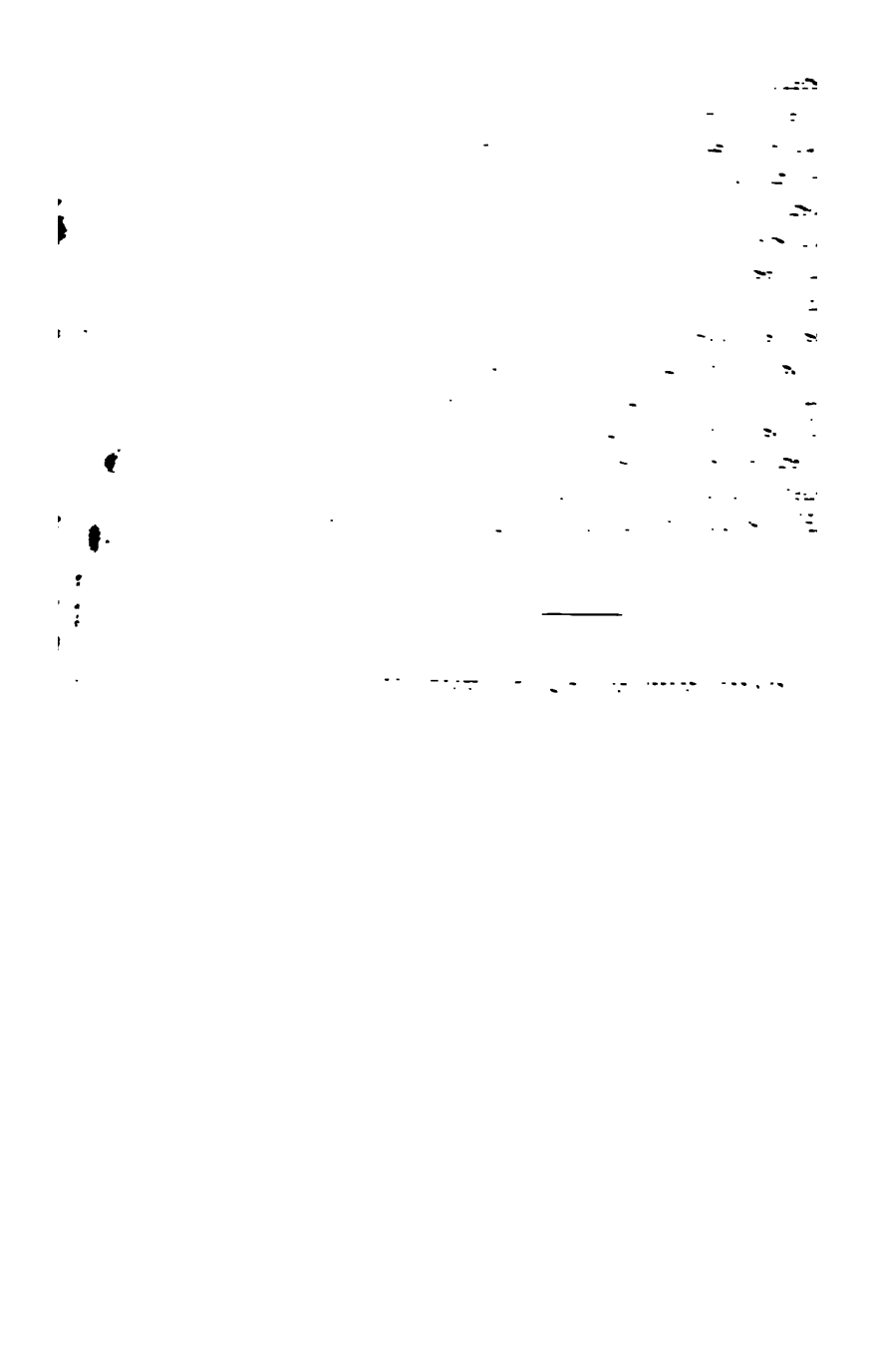
Having found out this easier and more effectual mode of digging my own land, I have been anxious to communicate my experience to others, especially to the labourer, whose back-aching occupation will be much relieved by the use of the fork. But alas! how difficult it is to do men good if old habits and prejudices are in the way! Walking out one evening, I passed a cottager's garden, the owner of which was laboriously cutting out cubes of his stiff soil with a spade. "Do you ever try the fork?" I asked, and informed the man how much more easily the ground was worked by it. The answer was, "No, Sir, I do not like a fork; it does not clean the ground like a spade." I attempted to reason, but found the effort vain, and all I could get the digger to say was, that a fork would not clean the ground like a spade! If by cleaning is meant the eradicating roots of weeds, it is in this particular the fork possesses peculiar excellence.

VII. CHRISTMAS FLOWERS.

Amidst the joyousness indulged by common consent at this season of the year, there has been manifested, at all times and places, a love of flowers, carried indeed, in these northern regions, almost to passionate fondness, as though we were anxious to obliterate every trace of the desolateness of vegetable life around us. Those who cannot procure real foliage and flowers will have them formed of wax and velvet; a garland of some kind must be entwined to grace the feast; and few persons could be found so uninterested in such matters as to leave an object of beauty in the garden instead of plucking it to adorn the drawing-room. In some seasons there is no difficulty in making a bouquet in December. One year, on the 10th of the month, we gathered, in good condition, flowers enough to fill several vases and baskets, among them being China Roses, Phlox Drummondi, Verbenas, Mignonette, Erysimum, with its deep orange spikes, and Chrysanthemums; besides Laurustinus, Holly, and other Evergreens. I must not omit to add some beautiful Primroses, and an abundance of fine blooms of the Helleborus niger, or Christmas Rose. The reign of desolation is much shortened by such a protracted autumn, which enables the departing flowers of the year almost to form an acquaintance with those of the spring. My list will even now be very incomplete if I forget to mention the Russian Violet, the delightful fragrance of which added a charm to every nosegay which the autumn produced; but Ever-

greens are the appropriate ornaments of the season, because they can be procured during the hardest frosts; and that which must be deemed the *facile princeps* of this attractive tribe is the Holly, with its fine healthy shining leaves and gorgeous berries! The very name of Holly is associated with ideas of holidays, roast beef, and mince pies, and all the *et ceteras* of a joyous boyhood at Christmas time. Every garden should grow this fine tree, that an abundance of branches may never be wanting for public buildings, and the pleasant decoration of our homes. At the same time depredations should be discouraged, for the tree is of slow growth, and a careless school-boy or a reckless vender of the article may disfigure a bush which has cost its owner years of care, and formed an object of pleasure of no ordinary kind. The varieties of Holly are numerous, and we would advise our readers to put a few into vacant spaces this winter; taking them up with as little derangement of the roots as possible, and choosing a light well-drained soil to transplant them in.

Mistletoe prefers some localities, and is wayward in its growth, but it may be sown in the bark of trees. The Laurustinus is a magnificent shrub, and will furnish a bouquet for many months, if different aspects are chosen for planting it. Common ivy makes an elegant addition to a vase at this season, and, as a general rule, the various shades of the foliage of Evergreens admit of very pleasing combinations. Let a tasteful hand arrange some sprigs of Laurel, Laurustinus, Phillyrea, Golden Box, and Ancuba japonica, and it will be confessed that the collection forms a lovely and graceful



welcome to you, and thanks you for your past care. Now the budding Hyacinths, just beginning to develope their colours, repay you for past exertions, and incite you to future labours. Lest the frost and snow without, prostrating all the beauties of your gardens, should engender a feeling of apathy, and cool down your floricultural tastes, the treasured Roses and Violets and Hyacinths within still link your memory to past and future glories, and "tell a flattering tale that spring will soon return." The very odour of a flower at this sterile season revives a thousand dormant recollections, and makes you long for the time when budding nature will invite to fresh exertions in her wide domain. Of one thing we may speak confidently, that, other things being equal, the gardener, even at Christmas, will have many pleasures, which he must want whose tastes lie not this way.

Among the dry details of gardening operations, which it has been our duty to present to the amateur gardener during the last twelve months, we have endeavoured to intersperse snatches of thought and sentiment appealing to that hidden and subjective life which perceives natural things in their causes, their intentions, and their results. We would hang a wreath upon the plough, and honour with a chaplet even the humble spade, because these have to be employed by beings whose privilege and duty it is to combine intellectual pleasures with mere manual operations. We would have the gardener remember that all that submits to his hand and appeals to his eye is intended to do more—to enlighten his understanding and purify his

heart. A mere gambler is he who can go to a horticultural show with no higher end than to secure a prize, as though Carnations were edged, and Tulips graced with symmetry of form, merely to help to fill his pockets. To such a man, flowers bear somewhat the same relations as the beauties of an oriental slave-market do to the trader in flesh and blood. He is the happy gardener who can soliloquise on a Daisy with Burns, or on a Crocus with Bernard Barton, and who in the shifting seasons and the various beauties by which they are all distinguished, feels himself raised to contemplate their great Author, and "look from Nature up to Nature's God."

God might have made the earth bring forth
 Enough for great and small,
The Oak tree and the Cedar tree,
 Without a flower at all.
 * * *
Our outward life requires them not—
 Then wherefore had they birth?
To minister delight to man,
 To beautify the earth;

To comfort man, to whisper hope
 Whene'er his faith is dim;
For He who careth for the flowers,
 Will much more care for him!—*Mary Howitt.*

When January arrives, that turn of the year will have taken place which immediately gives indications of the great resurrection of Nature. After every frost something will peep up from its earthy bed; leaf-buds will become more plump and prominent, and an occasional flower will herald in the coming festival of

the year. To the amateur who is about to dedicate himself still to Flora, we hope to be of use. Numerous are the subjects yet untouched, and the suggestions which might still be offered, but we trust our labours, as far as pursued, will not be without their use. If but a very small number of our readers are made to take as much pleasure in gardening as we ourselves enjoy, an ample reward will be ours. These healthful and elevating recreations or duties must be taught to our children, that our pleasures may be theirs; for sure are we that the best hopes of future generations must be based on intellectual toil. We quite agree with the poet that the study of the fine arts corrects brutality and softens manners, and we reckon floriculture among those arts.

> ———Ingenuas didicisse fideliter artes
> Emollit mores, nec sinit esse feros.

The influence of horticultural pursuits on the middle classes is highly beneficial, although a more close examination and analysis is necessary to trace the modes of its operation on the morals and happiness of this large body of men. That the taste for gardening and flowers is extending in this department of society there can be no question, as the fact is indicated by many unequivocal signs. The *literature* of gardening is, to a large extent, fostered by the middle classes, in the form of magazines, newspapers, and separate volumes devoted to the various operations of the art. The shops of seedsmen and florists tell the same tale, both by their number, and by the greater attractions they now offer to the passer-by. In our boyish days the shop of the seedsman was a very

lugubrious affair, containing indeed the elements of future beauty and usefulness in sacks, and bags, and boxes, but displaying no taste to catch the eye and win the patronage of the street-walker. The case is now materially altered, for few of the principal streets of London and other large cities are destitute of a flower-shop. Here the beauties of the season are often displayed. Hyacinths and Camellias in spring, and Pelargoniums and Carnations in summer, tempt the suburban citizen retiring to his villa, or the ladies, whose husbands living in the city can allow them only the balcony and the drawing-room for their gardening operations. But the strongest proof of the increase of this taste in the middle classes is furnished by the decorated windows and pretty gardens which abound in the suburbs, and even in the heart of our towns. The influence exerted by this admiration of natural beauties is opposed to sordidness and low habits; home is rendered more delightful, and the mind, which, if always fixed on business and tied to the counting-house, would expire of atrophy, receives fresh pabulum for meditation and thoughtfulness by watching the growth of a plant or a flower.

Let amateurs weigh well the exhortations contained in the following paragraph:—"If the benign influences of Nature fall not on the slave, nor on the free victims of ill-requited toil, they refuse also to descend on him who is a florist for purposes of pecuniary profit alone, and estimates Tulips and Carnations and Roses by what they fetch in the market. We allude to this because it is to be feared that the competitors of

flower-shows are too often stimulated by the prizes offered to the successful exhibitor, and that the general lover of nature is not always the officiating priest in the floral temple. The adventitious and fashionable modes of cultivation, adopted by some amateurs, are as much opposed to genuine taste and natural beauty as their motives are contrasted with those of the real admirers of gardening and flowers. One man will disfigure his entire domain by the shades and other devices contrived to get up his Dahlias for the show; another will dress a Pink or a Carnation until it assumes an uniformity in the disposition of its petals which Nature rarely patronises. In proportion as the motive has been sordid, the disappointment, when the prize is denied, is severe. The man who has grown a flower for the pleasure that employment gave him, may wish he had succeeded in eclipsing his competitors; but if he is himself thrown into the shade, he is still repaid for all his care. But the mere gamester, if not rewarded with a prize, has lost the only thing which gave a stimulus to his energies."

The Florist's Farewell to the Year.

The months are past I've spent in Flora's bowers:
The sun once more his yearly course hath run:
Fallen are the leaves, and wither'd lie the flowers
I long'd to see, when first the year begun.
Alas, that loveliness so frail must be!
An emblem true of man's mortality.

Yet would I not lament these bygone days,
Like those so oft in idleness misspent;
To train a flower, these beauteous forms to raise,
May well employ the moments God has lent.
I work with him—I till and sow the ground,
'Tis he that makes the flowers and fruit abound.

Full oft have flowers meek eloquence employ'd
To teach my heart the lessons it required;
The joys of earth with sorrows are alloy'd;
To bear each grief my heart has been inspired,
As oft these gems of Nature seem'd to say,
"The Power which made us is not far away!"

Henry Burgess.

INDEX.

Amateur Gardener, the, defence of, 1; devotion of, 7; trials of, from vermin, cats, &c., 95; his admiration of Nature, 127; his enjoyment of spring, 146.
Annuals, culture of, 72; not adapted for small gardens, 74; on sowing, 83.
Art, results of, in floriculture, 15; subservient to Nature, 167.
Asparagus, 134; cause of failure of, 135; principles of cultivation, 135; treatment of beds, 136.
Autumnal arrangements, 272, 292.
Azalea, general management of, 314.

Balconies, plants in, 76.
Balfour, Dr., his work on Botany, 290.
Bedding-out Plants, treatment of, 107, 129, 132; on retarding the growth of, 108; plants adapted for, 131; time for, 133; soil for, 132.
Bees, hiving a swarm of, 149.
Birds in Kitchen Garden, 109.
Botany, on the study of, as necessary to a gardener, 288.
Briers for budding, 126, 214.
Broccoli, 110, 197.
Budding Roses, on, 211, 214, 218.
Bulbs, early appearance of, 28; in windows, 30, 238; in pots, 34, 240; on watering, 35; taking up, 163; preserving, 183; value of, in open air in the spring, 243; last words on, 297.

Cactus, on the cultivation of, 233.
Caterpillar on Gooseberries and Currants, 40; on Roses, 125.
Calceolarias, beauty and value of, 101.

Carnations and Picotees, 103; selection of sorts, 104; should be well rooted when bought, 104; propagation of, 178; winter treatment of, 250; advantage of growing in beds, 105; in pots, 105.
Cats, on, 119; offences of, 75, 120.
Celery, on, 194; largest not the best, 195.
Christmas Flowers, 334.
Chrysanthemum, on the cultivation of, 230.
Clearing up for summer, 162.
Cloaca, advantageous treatment of, 37.
Compost heap, to make, 48, 275; treatment of, 294.
Cowper on insect life, 97.
Crocus, on, 243—See BULBS.
Currants, mode of planting, 24; treatment of, 38; summer pruning of, 41, 111.
Cut-flowers, on generosity in giving, 202; mode of prolonging bloom of, 204.

Dahlia, the, 92; value of, 93; on purchasing a collection, 93; propagation of, 94; treatment of, while growing, 188; to preserve from earwigs, 190; preserving the tubers, 306.

Early York Cabbages, value of, 199.
Earwig, mode of killing, 96, 190; possessed of wings, 96.
Edgings for flower-beds, various sorts of, 87; on clipping grass, 87.
Evergreens, value of, 318.
Exotics, adapted for summer gardens, 85; for beds on lawns, 100.
Experience, results of, 224.

Family, the, made happy by gardening, 13.
First principles, importance of, 14.
Florists', the, Farewell to the Year, 342.
Florists and seedsmen, increase of, 14.
Flower Garden, on laying out, 20.
Flowers, on choice of, 83.
Flower-pots, 50.
Flower Shows, value of, 165; principles on which they should be conducted, 167; taste in exhibitors, 170.
Foresight, importance of, 209.
Fork and spade compared, 332.
Fritillaria, the, 301.
Fruit-trees, pruning of, 26; not to be nailed on walls in winter, 26; winter pruning of, 327.
Fuchsias, beauty and value of, 102.

Gardeners, our duty to, 329.
Gardening, pleasures of, 5; not confined to any class, 10; farming on a small scale, 17; an intellectual occupation, 143.
Gooseberries, mode of planting, 24; treatment of, 38; summer pruning of, 41, 111.
Grass plots, advantages of, 21; treatment of, 87, 274, 294; mode of laying down, 320.
Gravel walks, 88.
Green fly, to keep down, 123; various methods proposed, 138.
Greenhouse, often mismanaged, 122; general management of, 221.

Herbaceous plants, treatment of, 159, 164.
Herb-bed, position of, 23.
Hollyhocks, 159.
Horticultural Societies, 2—See FLOWER SHOWS.
Hot-bed frame, management of, 66; Cowper's description of, 68; slight one for summer, 69, 229.
Hyacinths in glasses, 29, 32, 279; in pots, 34, 240; in the open air, 243, 299; in large pots, 301; in moss, 302.

Insects, 94; caterpillars, 40; slugs, 95; woodlice, 95; earwigs, 96; wireworm, 97; in frames, 251.
Insect Life, Cowper and Shakspere on, 98; necessity of destroying, 97.
Ixias, 300.

January, effects of, on vegetation, 28.

Kitchen Garden, not fit for small domains, 20; a few words on, 109; autumnal treatment of, 253, 293; on laying out, 311; protection of crops in winter, 325.

Lancet, adapted for a budding knife, 217.
Laying out small gardens, on, 19, 23.
Lawns, exotics in beds on, 100; formation of, 320; treatment of, 87, 274, 294.
Lilies, 301.
Lindley, Dr., his works on Botany, 289; his Theory of Horticulture, 16.
London, gardening in, 4, 11, 12, 14, 22.

Manures, 35; furnished by the house and garden, 37.
Mould, disadvantages of fine and sifted, 45, 313.

Nature, the harmony of, 126.

Neatness, importance of, 86, 273.
Necessity of labour, 6.
November days, charm of, 9.

Out-buildings, should be concealed, 22.

Pelargoniums, 123; propagation of, 181; treatment when out of bloom, 183—See Scarlet Pelargoniums.
Petunias, 174.
Phlox Drummondi, value of, 74, 102.
Pinks, propagation of, 178.
Pit for wintering plants, 256, 305.
Planting, close, to be avoided, 25; principles of, 258, 262.
Plants for beds on lawns, 101.
Plants in pots, treatment of, 43, 121.
Potatoes, 62; planting ash-leaved, 63; method of raising in winter, 64; importance of good seed, 65; soil for, 65; experiments in growing, 111.
Potting plants, operation of, 49.
Preparation for winter, 252.
Preserving plants in winter, 303.
Propagation of plants, general remarks on, 199, 228.
Prospects of spring, 27.
Protection from frost out of doors, 322.

Raking, a difficult process, 88.
Ranunculus, on the, 52; Tyso and Son on the, 52; beauty of, 53; list of sorts, 55; planting, 55; choice of sorts, 59; from seeds, 59; mode of judging of healthy roots, 61; Turban, 61; taking up, 62, 155; situations for, 153; preserving roots, 185.
Raspberries, 24; thinning shoots of, 111; general culture of, 276.
Recreation, on, 159.
Redbreast, the, 9, 293.
Repotting, principles and treatment of, 43, 260.
Reserve bed for window plants, 186.
Rhubarb, treatment of, 77; on forcing, 79.
Roses, on, 84, 89, 174; adapted for all gardens, 84; care in removing of, 85; on purchasing, 90; trained to stakes or pillars, 91; tying up, 91; standards, 91; late bloom, 124; insects infesting, 125; staking budded, 126, 174; removing dead flowers, 175; failure of, 191; propagation by cuttings, 205; on budding, 211, 214, 218; knife for budding, 217; catalogue of, 281.

Sabbath-day, how to be employed by gardeners, 161.
Scarlet Pelargoniums, beauty and value of, 101; treatment of, 117.
Scrapers in gardens, 23.
Seed-beds, protection of, from birds, 82.
Seed-sowing, on, 81; preparation of soil for, 81.
Shakspere on insect life, 98.
Sloth, consequences of, 8; often felt, 30.
Slugs and snails, 95; mode of taking, 110.
Snowdrops, 297; difficulty of propagating, 301.
Soil for potting plants, 46; treatment of, before winter, 308.
Sounds, rural, variety of, 161.
Sparaxis, 300.
Spring bulbs, in open air, 243.
Staking and tying up, 173.
Strawberries, on watering, 140; treatment of runners, 141; new beds of, 266.
Succession of crops, 110.

Theory of horticulture, 16.
Thaw, work to be done after, 34.
Trailing plants, treatment of, 124, 164.
Transplanting, best time for, 158, 272.
Tulips, 243, 299—See BULBS.

Universality of gardening pleasures, 10.

Vacancies in flower borders, on filling, 207.
Verbenas, training of, 174; propagation of, 257.
Vines, on, 285.

Weeds and weeding, 114.
Window gardening, 31, 75; dust to be avoided, 33; danger from cats, 75; treatment in summer, 113; reserve bed for, 186; in winter, 279.
Winter Greens and Broccolies, 197.
Wireworm, 97.
Woodlice, 95.

Year, the close of, 336; florist's farewell to, 342.

EDINBURGH: PRINTED BY R. AND R. CLARK.



IN HORTICULTURAL LITERATURE no book has acquired a higher reputation than the late Dr. Neill's concise and popular treatise on Practical Gardening, which was originally prepared for the Encyclopædia Britannica, and has passed through four large editions. But our gardeners are men of progress; and the science of horticulture has made very rapid advances of late years, so that in the preparation of a New Edition it was necessary that the work of revision should be entrusted to skilful hands. In the selection of Mr. Edward Ravenscroft for this office, the publishers have exercised a sound judgment; and under his efficient editorship the work presents additional claims upon the confidence and the patronage of the public. Both author and editor are entitled, as practical men, to speak with authority upon this subject; and the present volume, which is the result of their united labours, is certainly the most thoroughly satisfactory compendium of horticultural knowledge which exists. It is copiously illustrated with woodcuts; and no gardener, be he amateur or professional, great or small—whether he grows pines or only potatoes—should be without it.—*Morning Post, April* 26, 1854.

This excellent manual, which has been a good while before the public, has proved itself in all respects what it promised to be, namely, an efficient and practical guide to Practical Gardening. The author, Dr. Neill, who with great practical knowledge, had a thoroughly scientific acquaintance with the principal science, Botany, which ought always to form an important branch of the practical gardener's study, was the first who joined science and art in a practical and popular manner; and this peculiar feature of his work soon earned for it the approval as well of the scientific as the practical world. Since he wrote, many new improvements on culture, and new plants, required to be incorporated with the text; for this purpose, a new edition was called for; and though the death of Dr. Neill precluded the possibility of his being able to do what he could have done so well, nevertheless, his work has found an editor no ways behind him in such qualifications as were necessary to bring the work up to the present state of horticultural science. Mr. Ravenscroft has re-written many parts of the treatise, and has exercised such an amount of care and attention upon the other portions that it has all the freshness of an original treatise. With such claims upon the public, there can be no doubt of the success of the fifth edition of "The Fruit, Flower, and Kitchen Garden."—*Glasgow Herald, May* 29, 1854.

Fifth Edition, improved with Additions, price 5*s*.

THE

FRUIT, FLOWER, & KITCHEN GARDEN,

BY THE LATE PATRICK NEILL, LL.D. &c.

ADAM & CHARLES BLACK, Edinburgh.

PROFESSOR BALFOUR'S BOTANY.

Just Published, complete in One Large Volume Octavo, with 1300 Illustrations, Price 31s 6d.

CLASS-BOOK OF BOTANY.

BEING

AN INTRODUCTION TO THE STUDY OF THE VEGETABLE KINGDOM

BY J. H. BALFOUR, M.D. F.R.S.E.

Regius Keeper of the Royal Botanic Garden,
Professor of Medicine and Botany in the University of Edinburgh, &c.

THE SAME MAY ALSO BE HAD IN TWO PARTS.

I. STRUCTURAL and MORPHOLOGICAL BOTANY, 8vo, 10s. 6d.

II. Comprising the Elements of VEGETABLE PHYSIOLOGY, CLASSIFICATION, BOTANICAL GEOGRAPHY, and FOSSIL BOTANY, with a Glossary of Terms. 8vo, 21s.

THE LANCET.

"One of the most complete and elegant Class-Books on Botany which has been published. It contains all that a student may require, both in description and illustration."

HOOKER'S JOURNAL OF BOTANY.

"Few if any works on this subject contain such a mass of carefully collected and condensed matter, and certainly none are more copiously or better illustrated."

NORTH BRITISH AGRICULTURIST.

"The best and most interesting introduction to the study of Botany, that has ever come into our hands."

ANNALS OF NATURAL HISTORY.

"One of the best books to place in the hands of a student."

LEADER.

"For clearness of exposition, felicity of arrangement, copiousness and exactitude of details, this Class-Book deserves commendation."

ADAM & CHARLES BLACK, Edinburgh.

WORKS ON NATURAL HISTORY.

By JAMES NICOL, F.R.S.E., F.G.S., Professor of Natural History in Marischal College, Aberdeen.

MANUAL OF MINERALOGY; or, the Natural History of the Mineral Kingdom. Containing a General Introduction to the Science, and descriptions of the several Species, including the more Recent Discoveries and Chemical Analyses. Post 8vo (pp. 596), 6s. cloth.

"There is a completeness about this Manual of Mineralogy which must recommend it to every one pursuing this branch of science. Particular attention has been paid to the crystallographic and chemical characters of each mineral, and the analyses given are more extensive, and selected with more care, than those to be found in any work on mineralogy in the English language."—ATHENÆUM.

By JAMES D. FORBES, D.C.L., F.R.S., Sec. R.S., Edin., Corresponding Member of the Institute of France, and of other Academies, and Professor of Natural Philosophy in the University of Edinburgh.

NORWAY AND ITS GLACIERS, Visited in 1851.

Followed by Journals of Excursions in the High Alps of Dauphine, Berne, and Savoy. With two Maps, ten Lithographic Views printed in colours by Day and Son, and twenty-two Wood Engravings. Royal 8vo, 21s. cloth.

"This is one of those books which we need not blush to present to foreign philosophers and men of learning, as a specimen of the literature of science in England."—EXAMINER.

"It forms one of the most valuable contributions of modern science to the knowledge of the physical geography of the globe."—JOHN BULL.

"The high literary powers of the author, exhibited in this as in his other productions, will secure to it a reputation in Europe beyond that which usually falls to the lot of scientific publications."—WESTMINSTER REVIEW.

"*We close this rapid glance at the Glaciers and Professor Forbes' book not without some regret, for the volume is printed and illustrated in a style worthy of its most interesting contents, and, while it deserves a place on the shelves of a philosopher, is fit for the drawing-room table of a duchess.*"—FRASER'S MAGAZINE.

ADAM & CHARLES BLACK, Edinburgh.

In a neat Pocket Volume, bound in cloth limp, price 5s.,

BLACK'S
PICTURESQUE TOURIST
OF
IRELAND.

COMPILED FROM RECENT TOURS THROUGHOUT THE ISLAND MADE EXPRESSLY FOR THIS WORK.

Embracing Descriptions of all the ROUTES frequented by TOURISTS, with full information regarding Hotels, Inns (and the charges made by each), Conveyances, Guides, and every Topographical Information likely to prove useful. Illustrated by a Map of Ireland, numerous Charts of the more interesting localities, and Plans of the principal cities.

Cheap Guides to the Principal Touring Districts,

At 1s. 6d. each, Bound in Cloth Limp.

DUBLIN and the WICKLOW MOUNTAINS, with Chart of the Wicklow District and Plan of Dublin. Cloth limp, price 1s. 6d.

KILLARNEY, and the SOUTH of IRELAND, with a Chart on an enlarged scale of the Killarney District, and a Plan of Cork. Cloth limp, price 1s. 6d.

THE SHANNON, and WEST OF IRELAND, with a Map and Plan of Limerick. Cloth limp, price 1s. 6d.

BELFAST, GIANT'S CAUSEWAY, and the NORTH of IRELAND, with a Map and Plan of Belfast. Cloth limp, price 1s. 6d.

No cost or trouble has been spared in the construction of these works, and the greatest care has been taken not to overload them with useless matter, which only serves to perplex and irritate the tourist, or, on the other hand, so to curtail their contents as to make the descriptions dry and uninteresting. In every case, however, whatever is useful has the precedence of what may be considered purely ornamental, and thus, while their great object as Guides is fulfilled, the other, of affording amusement, is combined. This union, it is hoped, is so adapted as to suit every class of travellers.

Edinburgh: A. & C. BLACK, and sold by all Booksellers.

LIST OF WORKS

PUBLISHED BY

ADAM AND CHARLES BLACK,

EDINBURGH.

LIST OF WORKS

PUBLISHED BY

ADAM AND CHARLES BLACK,

EDINBURGH.

Now Publishing, in Monthly Parts, Price 8s., and in Quarterly Volumes, Price 24s., strongly bound in cloth,

ENCYCLOPÆDIA BRITANNICA,

EIGHTH EDITION, GREATLY IMPROVED, AND BROUGHT DOWN TO THE PRESENT TIME.

Edited by THOMAS STEWART TRAILL, M.D., F.R.S.E., &c., Professor of Medical Jurisprudence in the University of Edinburgh. Assisted by numerous Contributors, whose Initials are affixed to their respective Articles. Illustrated with numerous Engravings on Wood and Steel.

The ENCYCLOPÆDIA BRITANNICA forms an Alphabetical Repertory of every branch of Human Knowledge, and renders the Alphabet a ready key not only to the Arts and Sciences, but to the multiplied details of History, Philosophy, Biography, Geography, Commerce, Manufactures, Statistics, and Miscellaneous Literature.

The Publishers are fully aware that in a comprehensive work of reference, as this is, it is desirable to obtain Completeness and Accuracy of Detail in all the Articles, of whatever length or consequence they may be. Accordingly, while arrangements have been made to secure the co-operation of some of the most eminent living authors for the more important contributions, the greatest regard will in every respect be paid to those of the smallest size.

Encyclopædia Britannica, Eighth Edition—*Continued.*

List of some of the Contributors to the Eighth Edition.

Right Hon. THOMAS BABINGTON MACAULAY, M.P.
RICHARD WHATELY, D.D., Archbishop of Dublin.
R. JACKSON HAMPDEN, D.D., Bishop of Hereford.
WILLIAM WHEWELL, B.D., Professor of Moral Philosophy, Trinity College, Cambridge.
Sir WILLIAM HAMILTON, Bart., Professor of Logic in the University of Edinburgh.
HENRY ROGERS, Esq., Professor, Springfield College, Birmingham.
JAMES MONTGOMERY, Esq., Author of Greenland, and other Poems.
Sir ARCHIBALD ALISON, Bart., Author of the History of Europe, &c. &c.
Baron JUSTUS VON LIEBIG.
J. R. M'CULLOCH, Esq., Member of the Institute of France, Author of Commercial Dictionary, &c. &c.
JAMES D. FORBES, F.R.S.E., &c. &c., Professor of Natural Philosophy, Edinburgh University.
EDWARD THORNTON, Esq., Statistical Department, East India House, Author of a History of the British Empire in India.
JOHN STUART BLACKIE, Professor of Greek, Edinburgh University.
Dr. LEONHARD SCHMITZ, F.R.S.E., Rector, High School, Edinburgh, Author of History of Rome.
JOHN HUTTON BALFOUR, M.D., Regius Professor of Botany, Edinburgh University.
WILLIAM GREGORY, Professor of Chemistry in the University of Edinburgh.
WILLIAM SPALDING, Professor of Rhetoric, St. Andrews University.
AUGUSTUS PETERMANN, Esq., Physical Geographer to the Queen.
JOHN WILSON, Esq., Farmer, Eddington Mains, Berwickshire, Author of various papers on Agriculture read before the Highland and Agricultural Society.
THOMAS ANDERSON, M.D., Professor of Chemistry, Glasgow, and Lecturer on Agricultural Chemistry to the Highland and Agricultural Society.
JOHN HILL BURTON, Esq., Advocate, Author of the History of Scotland from the Revolution, &c.
Rev. WILLIAM LINDSAY ALEXANDER, D.D., Author of Connection and Harmony of Old and New Testaments, &c. &c.
GEORGE FARQUHAR GRAHAM, Esq., Author of various Works on Music.
GEORGE FERGUSON, LL.D., Professor of Humanity, King's College, Aberdeen.
CHARLES MACLAREN, Esq., F.R.S.E., Author of Topography of the Plain of Troy, Geology of Fife and the Lothians, &c. &c.
WILLIAM HOSKING, Esq., F.S.A., Professor of Architecture and Arts of Construction, King's College, London.
Rev. ROBERT MAIN, M.A., F.R.A.S., First Assistant, Royal Observatory, Greenwich.
Lieut.-Col. PORTLOCK, R.M.A., Woolwich.
Rev. WM. SCORESBY, Author of Account of the Arctic Regions, &c. &c.
J. H. STOCQUELER, Esq., Author of British Officer, Military Encyclopedia, &c. &c.
JONATHAN AYLEN, Esq., Master Attendant H.M. Dockyard, Sheerness.
JAMES WILSON, Esq., F.R.S.E., Author of various works on Natural History.
DAVID CRAIGIE, M.D., F.R.S.E.
Hon. LORD COCKBURN, Author of Life of Lord Jeffrey.
ROBERT MUSHET, Esq., of the Royal Mint.
LAWRENCE OLIPHANT, Esq., Author of the Russian Shores of the Black Sea, &c.

ENCYCLOPÆDIA BRITANNICA, EIGHTH EDITION—*Continued.*

IN every country where Science and Literature have been long and successfully cultivated, and books extensively multiplied, attempts more or less skilful have been made to reduce the mass of information to a compendious and regulated form, and to furnish a ready access to its varied details by means of Encyclopædias. Of the importance and advantages of such publications there can scarcely be two opinions. Executed on a plan sufficiently comprehensive, they ought to embrace all the departments of human learning, rendering the Alphabet a ready key, not only to the Arts and Sciences, but to the multiplied details of History, Biography, Geography, and Miscellaneous Literature. A work thus constructed is not only valuable to the Scholar and the man of Science as a Dictionary of Universal Reference, but the subjects being treated in a form consistent with systematic exposition, as well as with alphabetical arrangement, the book becomes an inestimable treasure to those who, although they cannot afford leisure for very laborious research or profound investigation, are yet desirous to possess that general information on all subjects which constitutes an intelligent and well-informed man.

Among books of this class, the ENCYCLOPÆDIA BRITANNICA has long been conspicuously eminent. As a Great Repertory of Human Knowledge, it has continued since 1771 to accumulate the ever-increasing treasures of Science and Literature. It was first published in three volumes 4to, 1771; next, in ten volumes in 1778; in eighteen volumes in 1797, to which was added the SUPPLEMENT, in two volumes, by BISHOP GLEIG, in 1801; this was followed by an edition in twenty volumes, in 1810; and other two editions during the succeeding ten years; to which was added the celebrated SUPPLEMENT, in six volumes 4to, edited by PROFESSOR NAPIER, commenced in 1815, and finished in 1824.

ENCYCLOPÆDIA BRITANNICA, EIGHTH EDITION—*Continued.*

The SEVENTH EDITION, which was completed in 1842, embodied whatever remained valuable in the previous editions and in the Supplements, and was further enhanced in value by the addition of some of the most celebrated disquisitions which have adorned the literature of the nineteenth century. The publication thus of Seven Editions with successive improvements, and the Sale of 35,000 copies, not during an excitement raised by a factitious reputation, but during a succession of years, in which the work was tested and approved by the most accomplished and scientific scholars, remains an irrefragable proof of its unquestionable merit, and have given it so decided a preference in public favour, that its popularity, instead of suffering diminution from rivalship, has steadily continued to increase, and never stood higher than at the present time.

It has been the leading object of its conductors to combine abstract with practical, and solid with pleasing information, in such proportions as would be most useful and most acceptable to the public, to deliver the truths of Science in the most accurate and intelligible form, and, at the same time, to pay due attention to those branches of knowledge, which, though not admitting of a scientific shape, are yet deservedly popular, and have a powerful influence on the taste, habits, and character of the individual,—in a word, to render the Work at once a DICTIONARY of SCIENCE, a Copious ABSTRACT of LITERATURE and PHILOSOPHY, and a BOOK of UNIVERSAL REFERENCE.

The EIGHTH EDITION will undergo careful revision and extensive alterations, so as to be accommodated to the improved taste and advanced intelligence of the times. Arrangements are accordingly made to secure the co-operation of the most eminent living Authors, who have contributed treatises in the various departments of Science, Literature, the Arts, Manufactures,

ENCYCLOPÆDIA BRITANNICA, EIGHTH EDITION—*Continued.*

Commerce, Statistics, and General Knowledge, to supersede those now rendered obsolete by the progress of discovery, improvements in the Arts, or the general advancement of society.

In giving effect to the extensive plan of reconstruction thus adopted, due consideration will, at the same time, be given to the great and permanent value of many of those Articles and Treatises with which the former Editions were enriched. The possession of these invaluable contributions forms, indeed, a characteristic feature of the Work, and gives it a decided pre-eminence over every other publication of its class.

To the Gentleman and the Merchant, to the Agriculturist and the Manufacturer, to the Clergyman and the Layman, to the Student of Science or Philosophy and the Cultivator of Literature or the Fine Arts, the Encyclopædia Britannica will prove an acquisition of the highest value. The great scope of its information also recommends it to Emigrants and other persons resident in quarters where access to books is difficult, or whose fortunes do not permit them the enjoyment of extensive libraries.

To all such the Publishers confidently recommend the ENCYCLOPÆDIA BRITANNICA, as a Work deserving of their confidence and support, and worthy of the National Name.

OPINIONS OF THE PRESS.

"The work is of established reputation; and though much is continually added to our knowledge, which makes all books of this description speedily imperfect, they are extremely valuable, as containing a perfect record of all the knowledge extant at the time they are compiled, much of which never can be old or out of date. The undertaking is a gigantic one, but it is in the hands of spirited men, who have known how to conduct similarly large and equally important undertakings to a successful issue. They are prompted to it by a continual demand for works of this elaborate kind, which is the best of all possible answers to those who continually reproach the age as superficial. Such large enterprises are an honour to the country as well as to the individuals, and we heartily wish the Messrs. Black a great success."—*Economist.*

"Notwithstanding the words Eighth Edition, the Work may be reckoned new in substance, wherein discovery or time has turned up new facts."—*Spectator.*

ENCYCLOPÆDIA BRITANNICA, EIGHTH EDITION—*Continued*

"The advance of literature and science is again commemorated by the advance of the great and famous *Encyclopædia Britannica* into a new edition. We have reason to conclude that, under the editorship of Dr. Traill, the Eighth Edition of this fine *Encyclopædia* will be at once worthy of its antecedents, and of the period in which it is produced; nor can we doubt that it will grow in favour as it grows in worth. Undoubtedly the social usefulness of an Encyclopædia—as the horizon of our knowledge widens—becomes greater every year."—*Examiner.*

"The Work reflects infinite credit on the Publishers."—*Guardian.*

"The style in which this new edition is got up, is every way worthy of the high character of the enterprising Publishers who have embarked in this important undertaking. It is highly satisfactory."—*John Bull.*

"This celebrated *Encyclopædia*, the *Eighth* Edition, under the editorship of Dr. Traill, promises to be more valuable than all its predecessors, additional dissertations being announced from the able pens of the Archbishop of Dublin, Dr. Whewell, and Professor J. D. Forbes. The enterprising Publishers have our heartiest good wishes for the success of their venture."—*Atlas.*

"This admirable repertory of human knowledge is now about to be issued for the eighth time, loaded with the additions which wonderful discoveries in the field of intellect have made to the previous stock. Its history is a type of the history of the progress which the successive editions chronicle. When finished, it will be the most complete collection of treatises on arts and sciences and general literature, that we possess in the language."—*Daily News.*

"A new edition of the famous *Encyclopædia Britannica*, the most famous, and in estimation the foremost, of English Encyclopædias, is *an event* in the history of British literature, to be recorded with something more than a mere note among the intelligence of the time. Such a work will be something more than a dictionary, something better than a mere book of reference; it will be a book to be read by the seeker after knowledge—a book for the man of business no less than for the man of study."—*Critic.*

"In conclusion, we very cordially recommend this publication to the ministers and laity of our Church, and to congregational libraries. We add a suggestion to congregations about to make presents to their ministers, exhorting them by all means to turn away their eyes from the dazzling wares of the jeweller and upholsterer, which are fitter for the Crystal Palace than the penetralia of the manse, and to help them, in preference, to adorn their shelves, and refresh their minds with this new issue of the Encyclopædia Britannica."—*United Presbyterian Magazine.*

"It is highly honourable to the proprietors of this great national work, that each new edition should be invested with increased claims to general admiration and patronage. A new edition, in too many cases, means merely a reprint of the old edition, with scarcely a symptom of revision. In this instance, on the contrary, not only will all the new objects and inventions which have acquired permanency be incorporated into the work, but many of the articles which formerly appeared will be re-written, or receive such additions as circumstances may have rendered expedient. Successive issues of a trustworthy Encyclopædia present a history of Progress. Thus the eighth issue of the *Encyclopædia Britannica* will tell of all that is worthy of note to the present hour, discarding the notions which modern genius has superseded, and narrating the progress to perfection which all worthy inventions have achieved. It is by no means an unimportant feature of the present edition, that it is printed in a clear and beautiful type, and upon the finest description of paper. The Publishers have rightly judged that the highest class of composition is worthy of the highest adjuncts."—*United Service Gazette.*

"We are certain that all students, and generally the entire reading world, wherever the English language is spoken or understood, will gladly welcome this, the eighth edition of a work which has been the standard book of reference for upwards of three-quarters of a century. The style in which it is got up,

ENCYCLOPÆDIA BRITANNICA, EIGHTH EDITION—*Continued.*

were there nothing else, would force the *Encyclopædia Britannica* into notice. But when it is known that the contributors to its stores of knowledge are selected from amongst the most accomplished scholars and men of science of the present day, the public has a guarantee of its excellence which will lead to an extensive sale of the work."—*Glasgow Herald.*

"In securing the services of Professor Traill, as editor of the edition, we think the Publishers may well be congratulated. His life has been devoted to the study of medical and natural science; and of the success with which he has cultivated his acquaintance with them, the lustre with which, as Professor of Medical Jurisprudence, he has contributed so largely to give to our University, as a great medical school, may be taken as a sufficient proof. His clearness of head, soundness of judgment, and general habits of thought, are admirably adapted for the work of compilation; and it is with pleasure we find that, now in the maturity of his years, a man of his attainments and talent has devoted himself to a task whose performance will, doubtless, be so creditable to himself, and so useful to his fellow-men."—*Caledonian Mercury.*

"The publication of this edition of the *Encyclopædia Britannica* will form an epoch in the history of science and literature. It promises to possess greatly superior claims. The promises held out in the Prospectus, and the high character of the publishers, concur, with the pre-eminent qualifications of the new editor, Professor Traill, to give the most complete assurance that our highest expectations will be fully realised."—*Glasgow Constitutional.*

"Little more than ten years have elapsed since the seventh edition of this great national work was completed, 'and now an eighth appears!' The truth is, however, that since 1771 the *Encyclopædia Britannica*, which extended originally to only three volumes, has been rolling steadily on, and continually gathering bulk like a snow-ball. During the eighty and odd years which have elapsed, immense progress has been made in almost every department of human knowledge, and hence the necessity of extending, from time to time, this great mirror of all the sciences, so as to embrace our most recent acquisitions. The proprietors of the *Encyclopædia Britannica*, however, seem determined that the work which has grown up so successfully in their hands shall still be kept fresh and green—that every decaying twig shall be lopped off, and new and healthy branches engrafted on its vigorous stem. In the edition now begun, Professor Traill has been assigned a task for which he is well qualified; nor is he to be without ample assistance. When completed, which it will of course be in little more than five years, it will form the most complete, comprehensive, and admirable dictionary of arts, sciences, and general literature, in the world."—*Glasgow Citizen.*

ATLASES.

LAST EDITIONS, WITH ALL THE LATEST DISCOVERIES.

GENERAL ATLAS OF THE WORLD, 1853.—

Containing upwards of Seventy Maps, engraved on Steel, in the first Style of the Art, by SIDNEY HALL, HUGHES, and others; with Introductory Chapters on the Geography and Statistics of the different Countries in the World, and an Index of all the Names occurring in the several Maps, amounting to above 60,000, with their Latitude and Longitude, and the number of the Map in which they will be found. *New Edition*, containing all the latest discoveries in Australia, California, Africa, and Captain Inglefield's and M'Lure's in the Arctic Regions, with numerous improvements and additions. Strongly and elegantly half-bound in morocco, with gilt leaves. Price £2 : 16s.

GENERAL ATLAS OF THE WORLD—*Continued.*

This Work is published on the plan of small impressions, and frequent new and corrected issues. The Publishers are thus enabled to take advantage of every discovery as it appears, and to offer the public an Atlas that can be relied upon for accuracy, beauty, and comprehensiveness.

ALPHABETICAL LIST OF MAPS.

PHYSICAL GEOGRAPHY.

1. The Chief Physical Features of the World—Currents of the Ocean—Distribution of Winds, Rain, and Snow.
2. ETHNOGRAPHY—Distribution and Varieties of the Human Race.
3. ZOOLOGY—Distribution of some of the Principal Members of the Animal Kingdom.
4. BOTANY—Distribution of the Principal Plants—Region of Cultivation of the Tea, Sugar, Coffee, and Cotton Plants.
5. BOTANY—Distribution of Plants in Equinoctial America, according to Elevation above the Level of the Sea.
6. MAGNETIC CURVES.
7. ISOTHERMAL LINES.
8. MOUNTAINS and RIVERS.
9. STARS—Northern and Southern Celestial Hemispheres.
10. SOLAR SYSTEM—Theory of the Seasons and Tides—Eclipses—Phases of the Moon—Mariner's Compass—Twilight and Dawn—Summer and Winter Rays.

11. AFRICA—Madeira—Port of Aden.
12. AFRICA (NORTH and SOUTH).
13. Do. SOUTHERN PORTION, Large Scale.
14. AMERICA (NORTH).
15. AMERICA (SOUTH).
16. ARCTIC REGIONS and BRITISH AMERICA, shewing the North-West Passage discovered by H.M. ship Investigator, also the Coast explored in Search of Sir John Franklin, by Sir James Ross and Sir John Richardson, 1848-9; Captain M'Clure, Captain Austin, and Mr. Penny, 1850; Mr. Rae, 1851; Mr. Kennedy and M. Bellot, 1852; Captain Sir Edward Belcher and Captain Inglefield, 1852-3.
17. ASIA.
18. AUSTRALIA and VAN DIEMEN'S LAND.
19. AUSTRALIA, SOUTHERN PART—NORFOLK ISLAND.
20. NEW SOUTH WALES, and PLAN of SYDNEY.
21. VICTORIA—MOUNT ALEXANDER—GOLD REGIONS.
22. AUSTRIAN DOMINIONS.
23. BELGIUM, &c.
24. BRAZIL—PARAGUAY—BANDA ORIENTAL.
25. CANADA—NEW BRUNSWICK—NOVA SCOTIA.
26. CHILI—ARGENTINE REPUBLIC—SOUTH BOLIVIA.
27. CHINA—Islands of Chusan—Amoy—Hong-Kong.
28. COLUMBIA—PERU—VENEZUELA—NEW GRENADA—EQUATOR, &c.
29. CONTINENT of CENTRAL EUROPE.
30. DENMARK.
31. EASTERN ISLANDS—BIRMAH—Island of Labuan, &c.
32. EGYPT.
33. ENGLAND (NORTH PART).
34. ENGLAND (SOUTH PART).
35. EUROPE.

GENERAL ATLAS OF THE WORLD—*Continued.*

36. FRANCE in DEPARTMENTS (NORTH PART).
37. FRANCE in DEPARTMENTS (SOUTH PART).
38. FRANCE in PROVINCES.
39. GERMANY (NORTH PART).
40. GERMANY (SOUTH PART).
41. GREECE—Ionian Islands.
42. HOLLAND.
43. IRELAND in COUNTIES (NORTH PART).
44. IRELAND in COUNTIES (SOUTH PART).
45. IRELAND in PROVINCES.
46. ITALY (NORTH)—Environs of Rome.
47. ITALY (SOUTH)—Malta and its Dependencies.
48. INDIA in POLITICAL and MILITARY DIVISIONS.
49. INDIA in REVENUE DIVISIONS.
50. MEXICO—GUATIMALA—TEXAS.
51. NEW ZEALAND—WESTERN AUSTRALIA—VAN DIEMEN'S LAND.
52. PALESTINE—The Peninsula of Mount Sinai.
53. NORWAY, SHEWING the PHYSICAL FEATURES of the COUNTRY.
54. PAUL'S, ST., TRAVELS—The Journeyings of the Israelites, &c.
55. PERSIA, CABOOL—Beloochistan—Bokhara.
56. PRINCE EDWARD'S ISLAND.
57. PRUSSIA.
58. RUSSIA in EUROPE (NORTH PART).
59. RUSSIA in EUROPE (SOUTH PART).
60. SCOTLAND (NORTH PART)—Orkney Isles.
61. SCOTLAND (SOUTH PART)—Shetland Isles.
62. SPAIN (EAST PART)—Gibraltar.
63. SPAIN (WEST PART)—PORTUGAL.
64. SWEDEN and NORWAY.
65. SWITZERLAND.
66. TURKEY in ASIA—Ruins of Babylon.
67. TURKEY in EUROPE—Candia—The Bosphorus.
68. UNITED STATES—(NORTH PART).
69. UNITED STATES (SOUTH PART).
70. STATES of NEW YORK—VERMONT, NEW HAMPSHIRE, RHODE ISLAND, MASSACHUSETS, and CONNECTICUT.
71. STATES of KENTUCKY and TENNESSEE.
72. WEST INDIES—Yucatan.
73. WORLD.
74. WORLD on MERCATOR'S PROJECTION.
75. WORLD as KNOWN to the ANCIENTS.
76. WORLD—Principal Countries of the Ancient World, with the Roman and Persian Empires.

"For scientific accuracy, facility of reference, beauty of execution, and moderation in price, we have met with no similar work that can compare with this very useful, elegant, and enterprising publication."—*Glasgow Herald.*

"We are now in possession of an 'Atlas' which comprehends every discovery of which the present century can boast. Not a village nor a rivulet rendered famous by victory—not a single hamlet jotted down in the itinerary of the adventurous traveller—not a single spot which theodolite or aneroid barometer could determine with accuracy, has been omitted in the maps. They are each and all very beautiful models of completeness, and may be consulted without the slightest chance of the student's being misled. Nor is this all. In addition to the mere enumeration of localities and the establishment of their positions, positive and relative, the 'Atlas' supplies a body of information of scarcely less importance to the traveller, and of great value to the general reader. Several pages of the Statistics of States are given in a happy style of condensation; and following these are Barlow's Chart of Magnetic Curves of equal variations a chart (most interesting) shewing the mean annual temperature of the different

GENERAL ATLAS OF THE WORLD—*Continued.*

parts of the earth's surface; plates exhibiting the relative heights of mountains, and length and course of rivers, and a section of Humboldt's distribution of plants in Equinoctial America, according to elevation above the level of the sea; each of the Charts constituting invaluable contributions to Physical Geography. To crown the whole, there is a superb index upon the most approved plan, with a faithful enumeration of latitudes and longitudes. This 'Atlas' ought at once to supersede all other works of the kind, and we earnestly recommend those who are entrusted with the duty of education to accept it as their standard of correctness. No one, either in pursuit of truth on his own account, or attempting to direct the inquiries of others, will hereafter have any excuse for going astray."—*United Service Gazette.*

SCHOOL ATLAS—New Edition. With the principal Maps required for Instruction in Physical, Ancient, and Scripture Geography. A Series of Thirty-seven Maps, by W. HUGHES, F.R.G.S., late Professor of Geography in the College for Civil Engineers, SIDNEY HALL, and JOHN BARTHOLOMEW: with an Index of Names, exhibiting the Latitude and Longitude of places, and reference to the Maps. Royal 4to or 8vo, half-bound, 10s. 6d.

LIST OF MAPS.

PHYSICAL GEOGRAPHY.

CHIEF PHYSICAL FEATURES of the WORLD—Currents of the Ocean—Distribution of Rain, Snow, and Winds.
ETHNOGRAPHY—Distribution and Varieties of the Human Race—Prevailing Religions—Population and Languages.
ZOOLOGY—Distribution of the Principal Members of the Animal Kingdom—Of Animals in a Vertical Direction—Of the Principal Birds.
BOTANY—Distribution of the Principal Plants—The Region of the Cultivation of the Tea, Sugar, Coffee, and Cotton Plants.
COMPARATIVE VIEW of the PRINCIPAL MOUNTAINS and RIVERS.
The STARS—Northern Celestial Hemisphere.
The STARS—Southern Celestial Hemisphere.
The SOLAR SYSTEM—Comparative Size of the Planets, and their Distance from the Sun—Comparative Size of the Sun as seen from the Planets, &c.
THEORY of the SEASONS—Eclipses—Phases of the Moon—Mariner's Compass—Twilight and Dawn—Theory of the Tides, &c.

WORLD in HEMISPHERES.
EUROPE.
ENGLAND and WALES.
SCOTLAND.
HIGHLANDS of SCOTLAND, shewing Territories of the Clans.
IRELAND.
FRANCE and SWITZERLAND.
HOLLAND and BELGIUM.
SWEDEN, NORWAY, and DENMARK.
RUSSIA and POLAND.
PRUSSIA and WESTERN GERMANY.
AUSTRIAN EMPIRE.
TURKEY in EUROPE, and GREECE.
ITALY.
SPAIN and PORTUGAL.
ASIA.
TURKEY in ASIA, GEORGIA, and PART of PERSIA.
HINDOSTAN and PART of AFGHANISTAN.
AFRICA.
AFRICA (NORTH PART).
AFRICA (SOUTH PART).
NORTH AMERICA.
UNITED STATES and CANADA.
SOUTH AMERICA.
WEST INDIES.
AUSTRALIA, NEW ZEALAND, &c.

SCHOOL ATLAS—*Continued.*

ANCIENT AND SCRIPTURE GEOGRAPHY.

WORLD as KNOWN to the ANCIENTS.
PALESTINE, with its Ancient Divisions, and the Peninsula of Mount Sinai.
LOWER EGYPT, and Journeys of the Israelites.
COUNTRIES EMBRACED WITHIN the TRAVELS of ST. PAUL.

"The best Atlas of Modern Geography that has yet fallen in our way; it is at once a duty and a pleasure to recommend it."—*English Journal of Education.*

BEGINNERS' ATLAS—A Series of Twenty-Seven Coloured Maps of the Principal Countries in the World. In oblong 12mo, price 2s. 6d. cloth; 2s. in paper cover.

ATLAS OF AUSTRALIA; with all the Gold Regions. A Series of Maps from the latest and best authorities. In 4to, cloth, price 5s.

Contents.

I. GENERAL MAP of AUSTRALASIA, New Zealand, Polynesia, and Surrounding Islands.
II. AUSTRALIA—Divided into Districts.
III. NEW SOUTH WALES, VICTORIA, and SOUTH AUSTRALIA, shewing the different Gold Deposits.
IV. NEW SOUTH WALES—Divided into Counties, with all the Gold Deposits accurately laid down, and a Plan of Sydney.
V. VICTORIA—Divided into Counties, with all the Gold Districts accurately laid down, and a Plan of the Mount Alexander Gold Region.
VI. NEW ZEALAND, VAN DIEMEN'S LAND, and the settled portion of Western Australia, comprehending Swan River and Australind.

"The possession of these Maps will be necessary to the clear understanding of friends' letters, newspaper narratives, and travellers' reports; and therefore they should be placed upon the table in every house, for instant reference when required. They are beautifully engraved."—*Critic.*

"These Maps really leave nothing to be desired; they are singularly perfect specimens of the art, and we confidently recommend them for general use."—*Morning Post.*

COUNTY ATLAS OF SCOTLAND.—Containing Maps of all the Counties, in their Parochial and District Divisions, with the Railways, places of Historical and Legendary Note, Memoranda of Battles and former Boundaries; a General Map of Scotland; and a Series of Eight Historical Maps, exhibiting the Geography of the Country from the 1st to the 19th century. To which are added, Descriptions of Scotland and each of the separate Maps, and a complete Index to all the Parishes, showing respectively their Population, the County, Presbytery, and Synod in which each is situated, and the Post-Town. Quarto, coloured, 21s. cloth.

BLACK'S PICTURESQUE TOURISTS' GUIDES.

IN PORTABLE VOLUMES, ILLUSTRATED BY MAPS, CHARTS, AND NUMEROUS ENGRAVINGS.

"*They should find a corner in the portmanteau of every person about to undertake a journey of pleasure or business, either in England and Wales or Scotland.*"—John Bull.

"*The most valuable series of Picturesque Guide Books issued by Messrs. Black of Edinburgh. We have looked carefully through the volumes; they are admirably 'got up;' the descriptions are accurate, and remarkably clear and comprehensive. Altogether the series of works is of immense value to tourists.*"—Art Journal.

"*These works are all that could be desired. Copious in all kinds of information, elegant in style, most beautifully illustrated, and furnished with excellent maps, they form just the right sort of companions for the road. We commend them, therefore, to the patronage of tourist and traveller, and hope that they will soon entirely supersede those older 'guides' which were too often a mere compound of rant and quotation.*"—Witness, September 17, 1853.

"*The Guide-Books of these publishers have already commended themselves successfully to the traveller, by their accuracy, comprehensiveness, and judicious arrangement.*"—Atlas, August 1853.

ENGLAND AND WALES.—Third Edition. Corrected and Improved. Containing a General Travelling Map, with the Roads and Railways distinctly laid down, besides Sections of the more important Districts on an enlarged scale, and Engraved Charts of Roads, Railroads, and Interesting Localities. 10s. 6d. cloth.

"A carefully executed work, prettily illustrated, with useful Maps."—*Athenæum.*

ENGLISH LAKES.—Including an Essay on the Geology of the District, by John Phillips, F.R.S.G.L., Professor of Geology in King's College, London. With a minutely accurate Map, by W. Hughes; Charts of the Lakes, by Sidney Hall; Views of the Scenery by various distinguished Artists; and an ample Itinerary of all the Routes, with the distances accurately laid down. Fifth Edition, greatly enlarged and improved. In a neat pocket volume, 5s. cloth.

"This Guide to the Lakes has been compiled upon the same elaborate plan (as the Picturesque Tourist of Scotland), governed by the same resolution to spare no cost or trouble to achieve a successful result. It needs no higher commendation. It is a Picturesque Guide in every sense—its descriptions are charmingly written—its intelligence is ample and minute—and its illustrations are admirable specimens of art."—*Atlas.*

WALES, NORTH AND SOUTH, AND MONMOUTHSHIRE. Containing minutely Engraved Travelling Maps, Charts of the Railways, a Chart of the Course of the River Wye, numerous Views of the Scenery engraved on Wood and Steel, and a copious Itinerary. In a neat pocket volume, 5s. cloth.

"A very clear and complete Guide to the beauties and interesting objects of the Principality. With this volume in his hand, the traveller may thread Wales in all directions; learning what to see, and how to see it."—*Spectator.*

PICTURESQUE TOURISTS' GUIDES—*Continued.*

SCOTLAND.—Tenth Edition. Containing an accurate Travelling Map; Sixteen Engraved Charts of Roads, Railroads, and Interesting Localities (including Plans of Edinburgh and Glasgow); numerous views of the Scenery on Wood and Steel; and a copious Itinerary. 8s. 6d. cloth.

HIGHLANDS AND ISLANDS OF SCOTLAND.—Third Edition. Including Orkney and Zetland; descriptive of their Scenery, Statistics, Antiquities, and Natural History; with numerous Historical and Traditional Notices; Map, Tables of Distances, Notices of Inns, and other information for Tourists. By George and Peter Anderson of Inverness. 10s. 6d. cloth.

TROSACHS.—Loch Catrine, Loch Lomond, and Central Touring District of Scotland. With numerous Illustrations by Birket Foster, 5s.

"This is not only a guide to the Trosachs of Scott's 'Lady of the Lake,' but to all the interesting spots in the vicinity, and on the road to them, beginning with Stirling. It is a good guide to an interesting country, full, clear, and precise in its directions, and capitally illustrated with spirited cuts. The letterpress, moreover, is a model for the manner in which it deals with anecdotes and historical facts or associations. There is enough done to excite the reader's interest by informing his mind as regards past events, but stopping short of over-doing. The style in which the illustrative matter is told is fresh and spirited; that of a man communicating what he intimately knows, not what he has read up for the occasion."—*Spectator.*

"Some of the illustrations in this pretty little volume, from sketches taken on the spot last summer by Mr. Birket Foster, the able illustrator of Longfellow's *Poems*, *Hyperion*, and other works, are perfect little gems of wood-engraving. It is quite evident that the Messrs. Black have spared neither labour nor expense to produce a perfect guide for the tourist, and which shall at the same time serve as a memorial of the localities of this famed and most frequented part of Scotland. Its literary merits are of a very high order; the descriptions are at once simple and concise, the necessary travelling information laudably minute. No pedestrian should venture on the tour without it; and those 'who ride on horseback or in chariots,' will save both time, trouble, and money, by making this little volume their constant companion."—*Atlas.*

EDINBURGH—with a Description of the Environs. Illustrated with a Plan of the City; a Map of the Country Ten Miles round; and Twelve Views of the Public Buildings and of the Neighbouring Scenery. Eighth Edition, enlarged and improved. In a neat pocket volume, 2s. 6d.

"This little book should be in the hands of every stranger who desires to be familiar with all that is remarkable in the Antiquities, Institutions, and Public Buildings of Edinburgh."—*Scotsman.*

PICTURESQUE TOURISTS' GUIDES—*Continued.*

GLASGOW, THE WEST COAST, AND LAND OF BURNS. Including Falls of Clyde, Bute, Arran, Staffa, Iona, &c. 2s. 6d. cloth.

CHEAP EDITIONS—ONE SHILLING EACH.

THE TROSACHS—Loch Catrine and Loch Lomond.

THE CLYDE AND ITS WATERING PLACES, AND ARGYLESHIRE.

EDINBURGH AND ENVIRONS.

ENGLISH LAKE DISTRICT.

MOFFAT AND VICINITY.—Including the Grey Mare's Tail, Loch Skene, St. Mary's Loch, &c. &c., and Hints to Anglers in the Rivers, Streams, and Lochs in the Neighbourhood.

THE TOURISTS' MEMORIAL OF SCOTLAND.—A Series of Twenty Views of Picturesque Scenery and Celebrated Localities. 5s. cloth.

This Series of Views presents delineations of some of the noblest prospects in Scotland, by many of her most accomplished Artists. Among the subjects represented may be mentioned, EDINBURGH, PERTH, DUNKELD, ROSLIN CHAPEL, and the Castles of TAYMOUTH, STIRLING, and CRAIGMILLAR.

The List of Artists includes the names of LEITCH, HORATIO M'CULLOCH, D. O. HILL, MONTAGUE STANLEY, the REV. JOHN THOMSON, and others not less distinguished in their several styles and departments.

The Engravings are executed in the highest style of which the art is capable. W. MILLER, BRANDARD, WILLMORE, FORREST, COUSEN, and BENTLEY, are among the Engravers on Steel; while JACKSON, LANDELLS, JOHN THOMPSON, S. WILLIAMS, and BRANSTON, have executed the Views on Wood. The price is unusually moderate, even at a time remarkable for the variety of cheap publications; and the portability of its form recommends the work in a particular manner to the attention of the passing traveller.

CELTIC ILLUSTRATIONS—Two Lithographic Prints representing Full-Length Figures of a Highland Chief—Clan Macdonell, and a Highland Piper—Clan Gregarich. From Paintings by R. R. M'IAN, Esq. Price 3s. 6d. each, elaborately coloured.

These drawings have been executed with strict regard to fidelity of Costume, and furnish very accurate and spirited representations of the Celtic Character and Garb.

BLACK'S TRAVELLING MAPS.

Carefully constructed from the Best Authorities. Coloured, lined with Cloth, and bound in portable Cases for the Pocket.

England and Wales. 32 inches by 22½. 4s. 6d.—Smaller size, 2s. 6d.

Scotland. 32 inches by 22½. 4s. 6d.—Smaller size, 2s. 6d.

Ireland. 20 inches by 14½. 2s. 6d.

BLACK'S TRAVELLING MAPS—*Continued.*

The Tourist's and Sportsman's Companion to the Counties of Scotland. A Series of 36 Maps, with all the Roads, Railroads, Villages, Country Seats, Fishing Streams, Rivers and Lakes, Places of Historical and Legendary Note, Memoranda of Battles, Heights of Mountains, the District and Parish Divisions, Earldoms and Lordships. Strongly bound in Leather. Price 10s. 6d.

Continent of Europe. 17 inches by 24. 4s. 6d.

India. Including the Punjaub, Cabool, Scinde, Thibet, Ceylon, Singapore, &c. 23 inches by 17½. 3s.

County Maps of Scotland. 1s. each.

English Lake District of Cumberland, Westmoreland, &c. 19 inches by 14. 2s. 6d.

Wales—North and South. Compiled from the Maps of the Ordnance Survey. 14 inches by 11½. Each 1s. 6d.

CHEAP EDITIONS ON PAPER, UNCOLOURED.

England, 1s. *Scotland,* 1s. *Ireland,* 1s. *Wales,* 1s. *Lake District,* 8d. Central Scotland, 8d.

Black's Iron Highways, or Hand-Maps of the Principal Railways in England and Scotland. With the Connecting Lines of each, and Adjacent Country. Engraved on Steel, in the minutest style of accuracy, with all the Towns, Villages, Country Seats, Rivers, Streams, Lakes, Mountains, Canals, &c., from the most recent authorities.—**One Penny each.**

1. GREAT-WESTERN—London to Bath, Bristol, Exeter, and Plymouth.
2. SOUTH-WESTERN—London to Chobham Camp, Southampton, and the Isle of Wight.
3. NORTH-WESTERN—London to the Potteries, Liverpool, Manchester, Preston, and Lancaster.
4. LANCASTER AND CARLISLE, KENDAL JUNCTION, and Lake District.
5. CALEDONIAN—Glasgow and Edinburgh to Carlisle, &c.
6. GREAT NORTHERN—London to York, Hull, &c.
7. MIDLAND—York to Birmingham and Rugby, &c. &c.
8. YORK, NEWCASTLE, AND BERWICK.
9. NORTH BRITISH—Edinburgh to Berwick-on-Tweed, &c.

Complete, Bound in Cloth, with Descriptions, 1s. 6d. each.

1. LONDON AND THE NORTH-EAST.—By Great Northern, Midland, York, Newcastle, and Berwick, and North British Railways.
2. LONDON AND THE NORTH-WEST.—By the North-Western, Lancaster and Carlisle, and Caledonian Railways.

RELIGIOUS WORKS.

By Rev. WILLIAM LINDSAY ALEXANDER, D.D., Author of the Connection and Harmony of the Old and New Testaments, &c.

CHRIST AND CHRISTIANITY: A Vindication of the Truth of the Christian Religion, grounded on the Historical Verity of the Life of Christ.

By SAMUEL DAVIDSON, D.D., Author of "Ecclesiastical Polity of the New Testament," 8vo; "Introduction to the New Testament." 3 vols. 8vo; "Sacred Hermeneutics Developed and Applied," 8vo, &c.

A TREATISE ON BIBLICAL CRITICISM. Exhibiting a Systematic View of that Science. 2 vols. 8vo, 28s. cloth.

"Any one desirous of becoming acquainted with the history of the text of our Scriptures with the present state of Scripture criticism, and the difficulties that lie in the way of rectifying mistakes that have crept into the text—in short, with what criticism is, what it has done, what it expects yet to do, and the materials with which it has to work—to any one desirous of knowing these things, and what student of the Bible is not desirous of knowing something of them? Dr. Davidson's Treatise on Biblical Criticism is just the work we would recommend. It is truly a systematic view of the science. One feature of the work, particularly valuable to young students, we must not omit to point out, namely, the mention of those departments where careful research may be expected to be productive of important results. Dr. Davidson has omitted no opportunity of helping those who may be honourably ambitious of adding something to the accumulation of facts on which is based the science of Biblical Criticism. We have much pleasure in commending these volumes to the notice of those for whose benefit they are intended, and in expressing the hope that the author may be spared to do much more in this his favourite department."—*Witness.*

"The student may thus the more appreciate the labours of Dr. Davidson in these volumes, which are a highly important contribution to the study of Biblical Criticism, containing, as they do, a careful statement of facts and results, such as is not to be found on the subject elsewhere in the English language."—*Eclectic Review*, March 1853.

"Dr. Davidson's work contains a great mass of highly valuable information, collected and condensed with the care which marks the whole work. But we have said enough to accomplish our object, which is not to give an epitome of these volumes, but to do our best to recommend them to our readers."—Journal of *Sacred Literature*, April 1853.

RELIGIOUS WORKS—*Continued.*

WORKS BY JOHN KITTO, D.D.

A CYCLOPÆDIA of BIBLICAL LITERATURE.

Edited by John Kitto, D.D., F.S.A., Editor of "The Pictorial Bible," &c. &c. Assisted by numerous able Scholars and Divines, British, Continental, and American, whose Initials are affixed to their respective contributions. Illustrated by Maps, Engravings on Steel, and 554 Engravings on Wood. In two thick volumes 8vo, £3, cloth.

"It is not too much to say, that this Cyclopædia surpasses every Biblical Dictionary which has preceded it, and that it leaves nothing to be desired in such a work, which can throw light on the criticism, interpretation, history, geography, archæology, and physical science of the Bible. It is beautifully printed, and is illustrated with fourteen engravings of maps and views, besides more than five hundred well-executed woodcuts of subjects calculated to elucidate the Holy Scriptures."—*Horne's Introduction to the Critical Analysis of the Scriptures*, Ninth Edition, Vol. v., p. 437.

"In the Cyclopædia before us, we recognise the closeness of the connection between the Scriptural and profane subjects of the ancient world; the learning and ability with which the one class is made to throw light upon the other; the industry with which obsolete usages are again restored to the knowledge of mankind; the acute criticism which is made to bear on the most disputed forms and things of revelation; and the extraordinary illustration which the most recondite subjects receive at the hands of the Contributors."—*Athenæum.*

A POPULAR DICTIONARY OF THE BIBLE.

In a beautifully printed volume, Illustrated by 336 Engravings on Wood. 8vo, 10s. 6d. cloth or half-bound calf.

ILLUSTRATED HISTORY OF PALESTINE.—

A New Edition, with Map, and upwards of 200 Illustrations. Small 8vo, 6s. cloth; 6s. 6d. cloth, gilt edges.

"No expense seems to have been spared in the getting up of this volume which will be found not only a most useful companion to the sacred volume, from the compactness and comprehensiveness of its numerous details, but an attractive as well as valuable present to the young."—*Britannia.*

"We have placed this among the gift-books, because it ought to be one, so profusely is it illustrated. The season will not produce a more useful prize book than this."—*Critic.*

SCHOOL HISTORY OF PALESTINE. From the

Patriarchal Age to the Present Time; with Introductory Chapters on the Geography and Natural History of the Country, and on the Customs and Institutions of the Hebrews. With Questions for examination by Alexander Reid, LL.D., Rector of the Edinburgh Institution. 12mo, 3s. 6d., or with Map of Palestine, 4s. bound.

"Beyond all dispute it is the best historical compendium of the Holy Land, from the days of Abraham to those of the late Pasha of Egypt, Mehemet Ali."—*Observer.*

"Not only a complete description of the Holy Land, but a condensed History of the Jewish People. * * * On the whole, this ably compiled and elegant manual is well calculated to assist the young in obtaining a right understanding of Holy Scripture, and to impart a life-like interest to their study of the sacred volume."—*John Bull.*

RELIGIOUS WORKS—*Continued.*

Edited, and with Life, by Rev. Dr. GUTHRIE, Minister of Free St. John's, Edinburgh,

THE CHRISTIAN WORLD UNMASKED. A New Edition. 12mo, cloth, 2s. 6d.; gilt edges, 3s.; sewed, 2s.

"This is a beautiful reprint of a highly esteemed work, well worthy of the handsome dress in which it now appears, and of the appropriate introduction which Dr. Guthrie has given to it. His brief memoir of John Berridge brings out the peculiarities and excellencies of the good vicar of Everton in a manner which shows how well he could appreciate his character. We cannot but fancy Dr. G., himself a man of kindred genius, must enter with peculiar relish into the original and striking, but often odd and grotesque modes of thought in which his author indulged. At any rate he has done ample justice to him, and has well fulfilled his task in his condensed memoir of Mr. Berridge. This excellent volume has our hearty recommendation."—*Congregational Magazine*, Feb. 1858.

WORKS by Richard Whately, D.D., Archbishop of Dublin.

Elements of Logic and Rhetoric, crown 8vo, each	4/6
Easy Lessons on Reasoning	1/6
Easy Lessons on Money Matters	1/0
English Synonyms	3/0
Historic Doubts Relative to Napoleon Bonaparte	2/0
Lectures on Political Economy	8/0
Characters of our Lord's Apostles	3/6
Scripture Revelations respecting Good and Evil Angels	3/6
Scripture Revelations respecting a Future State	5/0
On some of the Peculiarities of the Christian Religion	7/6
On some of the Difficulties in the Apostle Paul's Writings	8/0
On the Errors of Romanism	7/6
On some of the Dangers to Christian Faith	10/0
Use and Abuse of Party Feeling in Religion	12/0
Charges and Sermons on various Subjects, each	12/0
Thoughts on Church Government	1/0
Reflections on a Grant to a Roman Catholic Seminary	1/0
Dangers of Divisions within the Church	1/0
Infant Baptism Considered	2/0
Thoughts on the Sabbath and Sabbath Observance	1/6
Search after Infallibility	1/0
Christian Saints of the New Testament	1/0
Preparation for Death	0/4
Introductory Lessons on Christian Evidences	0/6
Introductory Lessons on History of Religious Worship	2/0
Cautions for the Times	7/6

RELIGIOUS WORKS—*Continued.*

By the Rev. W. S. GILLY, D.D., Author of the "Waldensian Researches."

VALDENSES, VALDO, AND VIGILANTIUS. Post 8vo, 1s. 6d.

"An eloquent account, from personal observation, of that small community of Protestants, who, in the secluded valleys of the Cottian Alps, have, for many centuries, maintained the purity of their faith and worship, and kept up the fire of their vestal church, in the midst of privations and persecutions not yet extinguished."—*Quarterly Review.*

MEDICAL AND SURGICAL WORKS.

By ROBERT CHRISTISON, M.D., Professor of Materia Medica in the University of Edinburgh.

A DISPENSATORY OR COMMENTARY ON the PHARMACOPŒIAS of GREAT BRITAIN, comprising the Natural History, Description, Chemistry, Pharmacy, Actions, Uses, and Doses of the Articles of the Materia Medica. New and improved Edition, with a Supplement, containing the most important New Remedies which have come into general use since the publication of the last Edinburgh Pharmacopœia in 1841.—8vo, 20s. cloth.

"We earnestly recommend Dr. Christison's Dispensatory to all our readers, as an indispensable companion, not in the Study only, but in the 'Surgery' also.—*Brit. and For. Med. Review.*

By the same Author,

A TREATISE ON POISONS. In relation to Medical Jurisprudence, Physiology, and the Practice of Physic. Fourth Edition, enlarged, corrected, and improved. 8vo, 10s. cloth.

By the same Author,

ON GRANULAR DEGENERATION OF THE KIDNEYS, and its Connection with Dropsy, Inflammation, and other Diseases. 8vo, 8s. cloth.

"The illustrative cases, thirty-one in number, are narrated with Dr. Christison's usual clearness, and, like the rest of the work, are highly instructive. We strongly recommend this book to our readers."—*London Medical Gazette.*

By JAMES MILLER, F.R.S.E., Professor of Surgery in the University of Edinburgh, &c. &c.,

THE PRINCIPLES OF SURGERY. Third Edition, illustrated by 240 Wood Engravings, 16s. cloth.

"An admirable epitome of the surgical science of the day. Being written by a sound practical surgeon, accustomed to the public teaching of his science, it has that clearness of diction and arrangement which renders it an excellent manual for the student, as well as that amount of scientific and practical information which makes it a safe and valuable guide to the practitioner."—*Lancet.*

MEDICAL AND SURGICAL WORKS—*Continued.*

By the same Author,

THE PRACTICE OF SURGERY. New Edition, Illustrated by 227 Wood Engravings. 8vo, 16s. cloth.

"We have no hesitation in stating, that the two volumes form together a more complete text-book of surgery than any one that has been heretofore offered to the student."—*Northern Journal of Medicine.*

By Professor Sir GEORGE BALLINGALL,

OUTLINES OF MILITARY SURGERY. New Edition (the 4th), with numerous Illustrations. 8vo, 14s. cloth.

"The Author has collected and arranged the whole of the established facts, he has added the result of his own experience, and executed a System of Military and Naval Surgery of inestimable value to those engaged in the practice of that branch of the healing art."—*Lond. Med. and Surg. Journal.*

By SAMUEL COOPER, Senior Surgeon to the University College Hospital, London, Professor of Surgery in the same College, Surgeon to the Queen's Bench, &c. &c. &c.,

A DICTIONARY OF PRACTICAL SURGERY. Comprehending all the most interesting improvements from the earliest times down to the present period; an account of the Instruments and Remedies employed in Surgery; the etymology and signification of the principal Terms; and numerous References to ancient and modern works, forming a catalogue of Surgical Literature, arranged according to subjects. The Seventh Edition, revised, corrected, and enlarged. 8vo, 30s. cloth.

By DAVID CRAIGIE, M.D., F.R.S.E., &c. &c.,

ELEMENTS of GENERAL and PATHOLOGICAL ANATOMY. Presenting a view of the present state of knowledge in these Branches of Science. The Second Edition, enlarged, revised, and improved. 8vo, 24s. cloth.

"A work of great value, and one which does great credit to the Author's erudition and laborious research."—*London Medical Gazette.*

By the same Author,

ELEMENTS of the PRACTICE of PHYSIC. Presenting a View of the present state of Special Pathology and Therapeutics. 2 vols. 8vo., 20s. cloth.

"We are inclined to regard Dr. Craigie's Elements as the best we at present possess."—*London Medical Gazette.*

By the same Author,

ELEMENTS OF ANATOMY, General, Special, and Comparative. With Fourteen Engravings. 4to, 12s. cloth.

MEDICAL AND SURGICAL WORKS—*Continued.*

HOOPER'S PHYSICIAN'S VADE MECUM; or, A Manual of the Principles and Practice of Physic. Fourth Edition, considerably Enlarged and Improved. With an Outline of General Pathology and Therapeutics. By William Augustus Guy, M.B. Cantab. 12mo, 10s. 6d. cloth.

By Dr. FRAMPTON,

THOMAS—Practice of Physic. New Edition. 2 vols. 8vo, 28s. cloth.

By ALEXANDER MACAULAY, M.D., Fellow of the Royal College of Surgeons in the University of Edinburgh, and Physician-Accoucheur to the New Town Dispensary,

A MEDICAL DICTIONARY. Designed for Popular Use; containing an Account of Diseases and their Treatment, including those most frequent in Warm Climates; with Directions for Administering Medicines; the Regulation of Diet and Regimen; and the Management of the Diseases of Women and Children. The Eleventh Edition, enlarged, corrected, and improved. Dedicated by permission to the late Dr. Abercrombie. In one thick volume 8vo, double columns, 12s. cloth.

"Just such a work as every head of a family ought to have on his bookshelf."—*Brighton Herald.*

NATURAL HISTORY, SCIENCE, AND ART.

By JAMES D. FORBES, D.C.L., F.R.S., Sec. R.S., Edin., Corresponding Member of the Institute of France, and of other Academies, and Professor of Natural Philosophy in the University of Edinburgh.

NORWAY AND ITS GLACIERS, Visited in 1851. Followed by Journals of Excursions in the High Alps of Dauphine, Berne, and Savoy. With two Maps, ten Lithographic Views printed in colours by Day and Son, and twenty-two Wood Engravings. Royal 8vo, 21s. cloth.

"This is one of those books which we need not blush to present to foreign philosophers and men of learning, as a specimen of the literature of science in England."—*Examiner.*

"It forms one of the most valuable contributions of modern science to the knowledge of the physical geography of the globe."—*John Bull.*

"The high literary powers of the author, exhibited in this as in his other productions, will secure to it a reputation in Europe beyond that which usually falls to the lot of scientific publications."—*Westminster Review.*

"The researches of Professor Forbes have added, as might be expected, to our knowledge of the Physical Geography of Norway. He has penetrated into its mountain-ranges in parts which had not before been explored by scientific visitors; and the result was, the observation of many facts of considerable importance in geological science."—*Athenæum.*

NATURAL HISTORY, SCIENCE, AND ART—*Continued.*

By the same Author,

TRAVELS THROUGH THE ALPS OF SAVOY, and other parts of the Pennine Chain, with Observations on the Phenomena of Glaciers. A New Edition, revised and enlarged. Illustrated by a large map of the Mer de Glace of Chamouni, Lithographed Views and Plans, and Engravings on Wood. Imperial 8vo, 28s., or with the large Map coloured, in a case, 31s, 6d. cloth.

"This elaborate and beautifully illustrated work."—*Quarterly Review.*
"Pregnant with interest."—*Edinburgh Review.*

By J. H. BALFOUR, M.D., F.R.S.E., Regius Keeper of the Royal Botanic Garden, Professor of Medicine and Botany in the University of Edinburgh, &c.

CLASS-BOOK OF BOTANY. Being an Introduction to the Study of the Vegetable Kingdom.

PART I. Structural and Morphological Botany, with upwards of One Thousand Illustrations. 8vo, 10s. 6d. cloth.

"One of the best books to place in the hands of a student."—*Annals of Natural History.*

"One of the most complete and elegant class-books on Botany which has been published. It contains all that a student may require both in description and illustration."—*Lancet.*

By the same Author,

CLASS-BOOK OF BOTANY. Concluding Part. Comprising the elements of Vegetable Physiology, Classification, Botanical Geography, and Fossil Botany, with a Glossary of Terms. With numerous Illustrations. 8vo, cloth.

In the Press.

By Sir DAVID BREWSTER, LL.D., F.R.S., Corresponding Member of the Royal Institute of France, &c. &c.

A TREATISE ON MAGNETISM. Illustrated by upwards of 100 Engravings on Wood, and a Chart of Magnetic Curves. Post 8vo, 3s. cloth.

By JOHN CLERK, Esq. of Eldin, F.R.S.E., &c.

NAVAL TACTICS—A Systematical and Historical Essay in Four Parts. Third Edition, with Notes by Lord Rodney, an introduction by a Naval Officer, and explanatory Plates. 8vo, 25s. cloth.

NATURAL HISTORY, SCIENCE, AND ART—*Continued.*

By AUGUSTINE F. B. CREUZE, Member of the late School of Naval Architecture, late President of the Portsmouth Philosophical Society, and Editor of the "Papers on Naval Architecture."

SHIPBUILDING. Being a Treatise on the Theory and Practice of Naval Architecture. With 15 Engravings on Steel, and numerous Woodcuts. 4to, 12s. cloth.

"One of the best, because the clearest, and, at the same time, perfectly comprehensive disquisitions on Shipbuilding, is contained in the Encyclopædia Britannica."—*Liverpool Mail.*

By JOHN FLEMING, D.D., F.R.S.E., M.W.S., Professor of Natural Science in the New College, Edinburgh, &c. &c.

MOLLUSCOUS ANIMALS—Including Shell-Fish. Containing an Exposition of their Structure, Systematic Arrangement, Physical Distribution, and Dietetical Uses, with a reference to the Extinct Races. With Eighteen Plates, Post 8vo, 6s. cloth.

By THOMAS GALLOWAY, M.A., F.R.S., late Secretary to the Royal Astronomical Society.

A TREATISE ON PROBABILITY. Post 8vo, 6s. cloth.

By G. F. GRAHAM, Esq.

MUSICAL COMPOSITION. Being an Essay on its Theory and Practice, with an Appendix and Notes, being an extension of the article "Music." With numerous Engravings and copious Musical Illustrations interspersed with the text. 4to, 9s. boards.

"A masterly and comprehensive Essay."—*Athenæum.*

By T. C. HANSARD.

PRINTING AND TYPEFOUNDING. Two Treatises. Illustrated with Plates and Woodcuts. Post 8vo, 2s. 6d. cloth.

By the late B. R. HAYDON and WILLIAM HAZLITT.

PAINTING AND THE FINE ARTS. Post 8vo, 6s. cloth.

"Mr. Hazlitt's clever little Treatise, written for the Encyclopædia Britannica, has come under our notice. We have read no work of that author with anything approaching to the same gratification."—*Quarterly Review.*

NATURAL HISTORY, SCIENCE, AND ART—*Continued.*

By WILLIAM HOSKING, F.S.A., Architect.

ARCHITECTURE WITH THE PRACTICE OF BUILDING. To which are subjoined the articles Masonry, Joinery, and Carpentry. With Thirty-five Engravings. 4to, 15s. boards.

By Lieutenant LECOUNT, R.N., F.R.A.S., C.E., of the London and Birmingham Railway.

RAILWAYS. A Practical Treatise; explaining their Construction and Management, being the article under that head in the Encyclopædia, with additional details. Illustrated with Woodcuts and Engravings. Post 8vo, 4s. 6d. cloth.

By Sir JOHN LESLIE.

NATURAL AND CHEMICAL PHILOSOPHY. Being the contributions of Sir John Leslie on the following important subjects of Natural and Chemical Philosophy to the Encyclopædia Britannica:—

1. *Achromatic Glasses.* 2. *Acoustics.* 3. *Aeronautics.* 4. *Barometer.* 5. *Barometrical Measurements.* 6. *Climate.* 7. *Cold and Congelation.* 8. *Dew.* 9. *Meteorology.*

Illustrated with Plates and Woodcuts, and prefaced by a Biographical Memoir of the Author. Post 8vo, 9s. cloth.

By J. R. M'CULLOCH, Esq., Author of Commercial Dictionary.

TREATISES and ESSAYS on Subjects connected with Economical Policy, with Biographical Sketches of Quesnay, Smith, and Ricardo. 8vo, 14s. cloth.

By CHARLES MACLAREN, Esq., F.R.S.E.

GEOLOGY of FIFE, and the LOTHIANS. Including detailed Descriptions of Arthur's Seat and Pentland Hills. Illustrated with 90 Woodcuts, 11 Geological Sections, and 2 Coloured Maps. *New Edition in the Press.*

By Professors MOIR and SPALDING.

POETRY, and ROMANCE; and RHETORIC, The former by William Spalding, Professor of Rhetoric in the University of Edinburgh, and the latter by George Moir, Esq., Advocate. Post 8vo, 3s. 6d. cloth.

NATURAL HISTORY, SCIENCE, AND ART—*Continued.*

By JAMES NICOL, F.R.S.E., F.G.S., Professor of Natural History in Marischal College, Aberdeen.

MANUAL of MINERALOGY; or, the Natural History of the Mineral Kingdom. Containing a General Introduction to the Science, and descriptions of the several Species, including the more Recent Discoveries and Chemical Analysis. Post 8vo (pp. 596), 6s. cloth.

"There is a completeness about this Manual of Mineralogy which must recommend it to every one pursuing this branch of science. Particular attention has been paid to the crystallographic and chemical characters of each mineral, and the analysis given are more extensive, and selected with more care, than those to be found in any work on mineralogy in the English language."—*Athenæum.*

By JOHN PHILLIPS, F.R.S., F.G.S., Professor of Geology in King's College, London, Author of "Illustrations of the Geology of Yorkshire," "A Guide to Geology," &c. &c.

A TREATISE ON GEOLOGY. Embellished with Plates and Woodcuts. Post 8vo, 6s. cloth.

"The author has selected and combined all the discoveries which have been made in Geology up to the present time."—*Morning Herald.*

By JAMES WILSON, Esq., F. R. S. E., &c. &c.

THE ROD AND THE GUN. Being Two Treatises on Angling and Shooting. The latter by the Author of "The Oakleigh Shooting Code." Second Edition, with numerous Engravings on Wood and Steel. Post 8vo, 10s. 6d. cloth.

"The treatise on Shooting, by the Author of the "Oakleigh Shooting Code," is written upon a very comprehensive plan, and beautifully illustrated. Its companion on angling, is one of the most interesting, instructive, and agreeable treatises on 'the gentle art' that exists in our language; and will probably be noticed at greater length in a future article."—*Edinburgh Review.*

"Know likewise to thy utter discomfort, nay, to thy utter confusion, that a book has lately appeared yclept 'The Rod and the Gun,' so amusingly written, and so complete in all its parts, that there is not the least occasion for you to burthen Mr. Murray's shelves with stale precepts that no one will attend to."—*Preface to "Days and Nights of Salmon Fishing," by William Scrope, Esq.*

By P. M. ROGET, M. D., Secretary to the Royal Society, &c. &c. Author of the Fifth Bridgewater Treatise.

PHYSIOLOGY AND PHRENOLOGY. Two vols. post 8vo, 12s cloth.

"A luminous and most candid and impartial account of Phrenology . . In the Treatise on Physiology, that science is treated clearly, fully, and in the systematic manner which a masterly instructor might adopt for the benefit of his pupils."—*Tait's Magazine.*

NATURAL HISTORY, SCIENCE, AND ART—*Continued.*

By JOHN SCOTT RUSSELL, M.A., F.R.S.E., Vice-President of the Society of Arts of Scotland.

A TREATISE ON THE STEAM ENGINE. Illustrated by 248 Engravings on Wood, and 15 Folding Plates on Steel. Post 8vo, 6s. cloth.

"Most complete and circumstantial. At the same time it is methodically, clearly, and luminously written. Considering the number of illustrations, it is a very cheap book; and, as it explains all the modern improvements and applications, it cannot fail in being a boon which every mechanist and engineer will receive with much gratitude."—*The Surveyor, Engineer, and Architect.*

By the same Author,

STEAM AND STEAM NAVIGATION.—A Treatise on the Nature, Properties, and Applications of Steam and on Steam Navigation. Illustrated with upwards of 80 Engravings on Wood, and 15 Folding Plates on Steel. Post 8vo, 9s. cloth.

"A work on Steam and Steam Navigation, in which science and interesting information are equally combined."—*Mechanic's Magazine.*

By WILLIAM B. SCOTT.

MEMOIR OF DAVID SCOTT, R.S.A., containing his Journal in Italy, Notes on Art, and other Papers. With seven Engravings. 8vo, 10s. 6d. cloth.

By JOHN SHAW, Drumlanrig.

EXPERIMENTAL OBSERVATIONS ON THE DEVELOPMENT and GROWTH of SALMON FRY, from the Exclusion of the Ova to the Age of Two Years. 4to, 2s. 6d. sewed.

By the Author of "The Oakleigh Shooting Code."

SHOOTER'S HAND-BOOK, being the Treatise on Shooting contained in the "Rod and the Gun." With Plates and Woodcuts. Post 8vo, 6s. cloth.

Edited by J. R. M'CULLOCH, Esq.

THE WEALTH OF NATIONS. An Inquiry into the Nature and Causes of the Wealth of Nations. By Adam Smith, LL.D.; with the Life of the Author, an Introductory Discourse, Notes, and Supplemental Dissertations. Fourth Edition, corrected throughout, and greatly enlarged. With two Portraits. 8vo, 16s. cloth.

NATURAL HISTORY, SCIENCE, AND ART—*Continued.*

By EMERIC SZABAD, late Secretary under the Hungarian National Government of 1849.

HUNGARY, PAST AND PRESENT; the Chief Periods in its History from the Magyar Conquest to the Present Time; with a Sketch of modern Hungarian Literature. Crown 8vo.

By THOMAS THOMSON, M.D., F.R.S., late Professor of Chemistry in the University of Glasgow.

TREATISES on BREWING and DISTILLATION. With Practical Instructions for Brewing Porter and Ales according to the English and Scottish Methods. By William Stewart. With Engravings. Post 8vo, 6s. cloth.

By THOMAS STEWART TRAILL, M.D., F.R.S.E., &c., Regius Professor of Medical Jurisprudence and Medical Police in the University of Edinburgh.

MEDICAL JURISPRUDENCE; being Outlines of a Course of Lectures. Second Edition. Post 8vo, 5s. cloth.

By the same Author,

PHYSICAL GEOGRAPHY. Post 8vo, 6s. cloth.

"A most elaborate digest of facts judiciously arranged, and, as a general exposition, perhaps the most complete that has yet appeared."—*Leeds Mercury.*

By PATRICK FRASER TYTLER, Esq.

HISTORY OF SCOTLAND. Third Edition, 7 vols. demy 8vo, £2 : 12 : 6, cloth. Also,—the Cheap Stereotyped Edition, in 9 vols. post 8vo, price £2 : 5s.

"The standard history of Scotland."—*Quarterly Review.*

By J. C. COLQUHOUN, Esq., Advocate, Author of "Isis Revelata."

SOMNAMBULISM. Seven Lectures. Translated from the German of Dr. Arnold Wienholt. With a Preface, Introduction, Notes, and an Appendix. Foolscap 8vo, 4s. boards.

"We recommend this volume to all who feel an interest in the subjects of which it treats. Both the Lectures of Wienholt, and the Notes, Appendix, &c., of Mr. Colquhoun, are replete with materials for thinking."—*John Bull.*

NATURAL HISTORY, SCIENCE, AND ART—*Continued.*

By JAMES WILSON, F.R.S.E., M.W.S., &c. Author of the Treatise on Angling in "The Rod and the Gun."

A VOYAGE ROUND THE COASTS OF SCOTLAND and the ISLES. With a Map of Scotland, exhibiting the Tract of the Voyage; a Chart of St. Kilda; Twenty Etchings on Steel by Charles H. Wilson, A.R.S.A., from Sketches during the Voyage by Sir Thomas Dick Lauder, Bart.; and numerous Wood Engravings from the same Sketches, drawn by Montague Stanley, Prior, and Sargent, and engraved by Branston, Landells, and other artists. Two volumes, post 8vo, 10s. 6d. cloth.

By the same Author,

THE NATURAL HISTORY OF BIRDS. Illustrated with 135 Figures, beautifully engraved on Steel. 4to, 12s. boards.

By the same Author,

THE NATURAL HISTORY OF QUADRUPEDS and Whales. With upwards of 160 Figures, engraved on Steel, 4to, 12s. boards.

By the same Author,

A GENERAL AND SYSTEMATIC TREATISE on Insects. With 540 Figures, engraved on Steel. 4to, 15s. boards.

By the same Author,

AN INTRODUCTION TO THE NATURAL HISTORY of FISHES. With 131 Figures, engraved on Steel. 4to, 9s. boards.

By HENRY T. M. WITHAM of Lartington, F.G.S., F.R.S.E., &c.

THE INTERNAL STRUCTURE OF FOSSIL VEGETABLES formed in the Carboniferous and Oolitic Deposits of Great Britain, described and illustrated. With 16 Engravings, coloured. 4to, 21s. boards.

By P. KELLAND, A.M., F.R.SS.L. and E. &c., late Fellow of the Queen's College, Cambridge, Professor of Mathematics in the University of Edinburgh.

ELEMENTS OF ALGEBRA. 8vo. 9s. cloth.

By the same Author,

DEMONSTRATIVE MATHEMATICS. Being a Course of Lectures by P. Kelland, A.M., F.R.SS.L. and E., Professor of Mathematics in the University of Edinburgh. 12mo, 4s. 6d. cloth.

SCHOOL BOOKS.

BRYCE—Elements of Algebra. By James Bryce, M.A., F.G.S., one of the Masters of the High School, Glasgow. Second Edition. 12mo, 4s. 6d., bound.

CARSON—Exercises in Attic Greek, for the Use of Schools and Colleges. By A. R. Carson, LL.D., F.R S.E., &c., and late Rector of the High School of Edinburgh. 12mo, 4s. bound.

CARSON—Phædri Fabulæ, Augusti Liberti Fabularum Aesopiarum, quas oculis puerorum subjici fas est, libras quinque, cum indece verborum, phrasiumque difficiliorum Anglice redditorum. Edidit. A. R. Carson, LL.D., late Rector of the High School, Edinburgh. Editio Sexta. 18mo, 2s. bound.

DONALDSON—Modern Greek Grammar, for the Use of Classical Students; with a Sketch of Modern Greek Literature. By James Donaldson, M.A., Greek Tutor to the Edinburgh University. Crown 8vo, 2s. bound.

GUNN—Rudiments of the Latin Language. By the late William M. Gunn, LL.D. Second Edition. 12mo, 2s. bound.

HETHERINGTON—The History of Rome. By the Rev. W. M. Hetherington, M.A. With an account of the Topography and Statistics of Modern Rome. By the Rev. J. Taylor, M.A. 12mo, with a Map of Ancient Rome, 3s. 6d. bound.

*** Without suppressing those traditionary legends which are blended with the earlier records of Roman History, an attempt has been made in the present work to distinguish between Fact and Fable, and to make the latter subserve the important purpose of elucidating and of fixing in the memory those real events from which the fabulous legends have arisen.

KITTO—History of Palestine for Schools. From the Patriarchal Age to the present time; with introductory chapters on the Geography and Natural History of the country, and on the Customs and Institutions of the Hebrews. By John Kitto, D.D., F.S.A., Editor of the "Pictorial Bible," &c. With Questions for examination, by Alexander Reid, LL.D., Rector of the Edinburgh Institution. 12mo, 3s. 6d., or with Map of Palestine, 4s. bound.

LINDSAY—High School Vocabulary. By Samuel Lindsay, A.M., late one of the Masters of the High School, Edinburgh. 18mo, 1s. bound.

SCHOOL BOOKS—*Continued.*

PORTEUS—A Summary of the Principal Evidences for the Truth and Divine Origin of the Christian Revelation. By the late Beilby Porteus, D.D., New Edition by Dr. Boyd, of the High School, Edinburgh. 18mo, 1s. bound.

SCHMITZ—Elementary Grammar of the Greek Language. By Dr. L. Schmitz, F.R.S.E., Rector of the High School, &c. &c. The Irregular Verbs are simplified by a System of Classification, and the Rules of Syntax contain all that is essential for a thorough knowledge of the Greek Language. 12mo, 3s. 6d. cloth.

SCRYMGEOUR—A Class-Book of English Poetry. Comprising Extracts from the most distinguished Poets of this Country, from Chaucer to the Present Time, with Biographical Notices, Explanatory Notes, and an Introductory Essay on the Origin and Progress of the English Language. By Daniel Scrymgeour, of Circus Place School, Edinburgh. 12mo, 4s. 6d. bound; or in Two Parts, price 2s. 6d. each.—Part I. containing the Poets from Chaucer to Otway; Part II. from Prior to Tennyson.

"The best and compactest view of the subject we have seen."—*Spectator.*

"Did we believe in the attainment of perfection, we should pronounce this the perfection of Poetical Class Books."—*Educational Times.*

VEITCH—Greek Verbs, Irregular and Defective; their Forms, meaning, and Quantity; Embracing all the tenses used by the Greek writers, with references to the passages in which they are found. By Rev. W. Veitch. 12mo, 6s. cloth.

"Mr. Veitch, in the volume before us, has, with singular ability and industry, contributed a most valuable addition to the literature of this country, and of Europe."—*Spectator.*

"A monument of industry and research. * * * There cannot be a more useful book for the Greek composer, whether in prose or in verse."—*Athenæum.*

WALLACE—Conic Sections. A Geometrical Treatise on the Conic Sections; with an Appendix containing Formulæ for their Quadrature, &c. By William Wallace, A.M., F.R.S.E., late Professor of Mathematics in the University of Edinburgh, &c. 4to, 4s. sewed.

TYTLER—History of Scotland. By Patrick Fraser Tytler, Esq. Enlarged and Continued to the Present Time, by the Rev. James Taylor, D.D., and adapted to the Purposes of Tuition by Alexander Reid, A.M., LL.D., Rector of the Edinburgh Institution. 12mo, 3s. 6d. bound.

SCHOOL BOOKS—*Continued.*

GENERAL MODERN HISTORY. By Alexander Fraser Tytler, Lord Woodhouselee, late Professor of Universal History in the University of Edinburgh. Continued to 1850; with a Chronological Table. 12mo, 8s. bound.

*** This Edition of a work of great Educational utility has been carefully revised, with the view of accommodating it in every respect to the purposes of tuition. It is printed in a new and distinct type, and is illustrated with a map of the world, which affords the means of tracing the fluctuating boundaries of empires, and the localities rendered memorable by warlike operations, or by other important events in Modern History.

GENERAL ANCIENT HISTORY. By Alexander Fraser Tytler, Lord Woodhouselee, late Professor of Universal History in the University of Edinburgh. With a Chronological Table and Map. 12mo, 3s. bound.

*** In this new Edition of Tytler's Elements of Ancient History, advantage has been taken of the recent discoveries and critical researches in the histories of Greece, Rome, and Egypt; in consequence of which it became necessary to correct or entirely supersede a large portion of the original work. The same principle has been adopted in the account of the Hebrew Commonwealth, which Tytler entirely omitted, and in the early history of others of the eastern nations.

MISCELLANEOUS WORKS.

BROWN—Views of Canada and the Colonists. Embracing the experience of an eight years' residence; views of the present State, Progress, and Prospects of the Colony; with detailed and practical information for intending Emigrants. By James B. Brown. Second Edition, fcp. 8vo, 4s. 6d. cloth.

CAIRD—The Poor Law Manual for Scotland. A new Edition, the Sixth of, by Alexander M'Neel Caird, Esq. 7s. 6d. cloth. To this Edition more than 150 pages of new matter have been added. The "SUPPLEMENT" has been incorporated; the "PRINCIPLES" (as well as the rest of the Contents) have been carefully revised, and upwards of Fifty Decisions, pronounced in the Court of Session and the Justiciary and Sheriff Courts, since the issue of the fifth edition, have now been reported.

*** The former Edition was thus noticed.

"It is referred to by all the Judges in the Supreme and Inferior Courts of Scotland, as an excellent authority on questions connected with the Scottish Poor Laws. We have derived much benefit from it in its former editions; and we advise all those who have to do with the administration of the Poor Laws in Scotland to provide themselves with a copy."—*Scottish Poor Law Journal.*

MISCELLANEOUS WORKS—*Continued.*

LIFE OF LORD JEFFREY. By Lord COCKBURN, one of the Judges of the Court of Session. Second Edition. 2 vols. 8vo, 25s. cloth.

"Our expectations on taking up these volumes were very high and they have not been disappointed. The book contains a variety of excellent matter, and the letters of Lord Jeffrey will heighten the respect that attaches to his name."—*Athenæum.*

"Taken altogether, this is a most pleasing and satisfactory book."—*Examiner.*

"One of the letters we would fain give entire, as not only one of the best in the volume, but one of the happiest pieces of epistolary writing in the language."—*Literary Gazette.*

DICKSON—The Breeding and Economy of Live Stock. Being the results of Forty years' Practical Experience in the Management and Disposal of Cattle, Horses, Sheep, and Pigs. By James Dickson. 12mo, 3s. 6d. boards.

GLASSFORD—Italian Poets. Lyrical Compositions selected from the Italian Poets, with Translations. By James Glassford, Esq. of Dougalston. Second Edition, greatly enlarged. Small 8vo, 7s. 6d. cloth.

IRVING—Lives of Scottish Writers. By David Irving, LL.D. Post 8vo, 5s. cloth.

The FRUIT, FLOWER, and KITCHEN GARDEN. By Patrick Neill, LL.D., F.R.S.E., Secretary to the Caledonian Horticultural Society. Fourth Edition. Revised and Improved, illustrated with upwards of 60 Woodcuts. 12mo, 3s. 6d. cloth.

"One of the best modern books on gardening extant."—*Loudon's Gardener's Magazine.*

THE GENTLE SHEPHERD. By Allan Ramsay. New Edition. With a Life and Portrait, and numerous Illustrations after David Allan. 18mo, sewed, 1s. 9d.; cloth, 2s. 6d. cloth, gilt, 3s.; morocco, 5s. 6d.

RUSSELL'S HISTORY OF MODERN EUROPE. With an Account of the Decline and Fall of the Roman Empire, and a View of the progress of Society from the Rise of the Modern Kingdoms to the Peace of Paris in 1763; in a Series of Letters from a Nobleman to his son. New Edition, continued to the Accession of Queen Victoria of England. Four volumes 8vo, 52s. cloth.

MISCELLANEOUS WORKS—*Continued.*

THE POETRY AND POETS OF BRITAIN.

From Chaucer to Tennyson, with Biographical Sketches, and a rapid View of the Characteristic Attributes of each. Preceded by an Introductory Essay on the Origin and Progress of English Poetical Literature. By Daniel Scrymgeour. Post 8vo, 6s. cloth; 6s. 6d. cloth, gilt edges.

THE OLD FIELD OFFICER, OR THE MILITARY

and Sporting Adventures of Major Worthington. Edited by J. H. Stocqueler. Two vols. post 8vo, 18s. cloth.

"It will be seen that there is no lack of matter in the Old Field Officer; and the author brings to his task an actual knowledge of India, of military life, and field sports, which gives a reality to the sketches."—*Spectator.*

"'The Old Field Officer' is worth reading, for the geniality for which the narratives are distinguished, and the light they throw on some features of military and sporting life abroad."—*Daily News.*

"We are bound to say that Mr. Stocqueler has performed his task well, and given us a very amusing book."—*Allen's Indian Mail.*

UNCLE TOM'S CABIN. By Mrs. Stowe. An elegantly Printed and highly Illustrated Edition.

With 130 Illustrations by Matthew Urlwin Sears, a Frontispiece by John Gilbert, and Ornamental Title-Page by Phiz. Cloth, gilt edges, price 10s. 6d.; morocco, 18s.

"Accept my thanks for the copy of your Illustrated Edition of Uncle Tom's Cabin. From the examination I have been able to give it, I am disposed to regard it as the best in point of execution, particularly in respect to the woodcuts which I have yet seen."—*Extract from a Letter from Mrs. Stowe to the Publishers,* Glasgow, April 14, 1853.

"Of all the varied forms in which the celebrated story of 'Uncle Tom' has been presented to the public, this is by far the most graceful and attractive; and when we consider how extensively the art of the typographer and the pencil of the artist have been employed in London and elsewhere to embellish the numerous issues of the work, it is matter alike of pride and satisfaction that our Edinburgh friends and countrymen, Messrs. Black, have produced an edition without a rival. Brought out in the very first style as regards paper and print, it has a beautiful frontispiece by John Gilbert, an ornamental title-page by Phiz, and no fewer than 130 fine engravings on wood by Matthew Urlwin Sears. These represent, with great taste and fidelity, every important incident in the narrative of Uncle Tom, whether humorous, revolting, or pathetic. A more winsome drawing-room book we have rarely seen. The binding and external illustrations and decorations are worthy of a work so beautiful within."—*Glasgow Herald,* April 1853.

"Of the many editions of this celebrated work, this is certainly the best that has come under our notice. It is beautifully printed, and embellished with numerous engravings by Gilbert, Phiz, and Sears."—*Atlas,* April 1853.

TALES OF GOOD AND GREAT KINGS. By M. FRASER TYTLER, Author of "Tales of the Great and Brave," &c. With Frontispiece. 12mo, 5s. cloth.

SIR WALTER SCOTT'S WRITINGS AND LIFE.

WAVERLEY NOVELS.

EACH NOVEL MAY BE HAD SEPARATELY AT THE FOLLOWING PRICES:—

Abbot	1/9	Old Mortality	1/9
Anne of Geierstein	2/0	Peveril of the Peak	2/6
Antiquary	1/8	Pirate	1/11
Betrothed, &c.	2/0	Quentin Durward	1/11
Black Dwarf, &c.	1/6	Redgauntlet	1/10
Bride of Lammermoor	1/4	Rob Roy	1/11
Count Robert of Paris	1/8	St. Ronan's Well	1/9
Fair Maid of Perth	1/11	Surgeon's Daughter—Castle Dangerous	2/6
Fortunes of Nigel	1/11	Talisman—Two Drovers—My Aunt Margaret's Mirror — Tapestried Chamber — Death of the Laird's Jock	1/9
Guy Mannering	1/9	Waverley	2/0
Heart of Mid-Lothian	2/8	Woodstock	2/0
Highland Widow, &c.	2/0		
Ivanhoe	1/11		
Kenilworth	1/11		
Legend of Montrose, &c.	1/6		
Monastery	1/9		

WAVERLEY NOVELS IN SETS, FIVE EDITIONS AS FOLLOWS:—

I. *Library Edition*, uniform with the standard English Authors. Complete in Twenty-Five Volumes Demy 8vo, cloth, price £11:5s. Each volume contains a complete Novel or Novels, illustrated with a Frontispiece and Vignette, Painted and Engraved by the most eminent Artists. This Edition contains all the latest corrections, additions, and introductions of the Author.

II. *Abbotsford Illustrated Edition.* With 120 Engravings on Steel, and nearly 2000 on wood. 12 vols., super-royal octavo, cloth, £11:11s.

III. *Author's Favourite Edition* in 48 vols., foolscap 8vo. With 96 Engravings on Steel by the most eminent Artists. Cloth, £7:4s.

IV. *Cabinet Edition.* In 25 vols., foolscap 8vo. With Vignettes, Fac-simile, and Engraving from GREENSHIELDS' Statue of the Author. Cloth £3:13:6.

V. *People's Edition.* Five vols. royal 8vo. With Portrait, Fac-simile, and Vignette Titles, after designs by HARVEY. Sewed, £2:5s., cloth, £2:10s.

POETICAL WORKS. Five Editions as follows:—

I.—A New Edition in one Vol. foolscap octavo, portable size, including THE LORD OF THE ISLES, and a variety of other copyright poetry contained in no other pocket edition. With a LIFE OF SCOTT, and Illustrations on Wood and Steel. Foolscap 8vo, cloth, gilt edges, 5s.; or crown 8vo, with additional Engravings, 6s.

SIR WALTER SCOTT'S WRITINGS AND LIFE—*Continued.*

II.—POCKET EDITION FOR TOURISTS. LAY OF THE LAST MINSTREL MARMION—LADY OF THE LAKE—ROKEBY—and LORD OF THE ISLES. Illuminated Covers, gilt edges, 1s. 3d. each. Cloth, lettered, 1s. 6d.; Full bound morocco, 2s. 6d.

III.—In one Vol. royal octavo, cloth, uniform with the Novels, People's Edition, Vignette Title, and Fac-simile. Cloth, lettered, 10s.

THE SAME, large paper, with 26 Engravings from TURNER, &c., forming a companion to the Novels, Abbotsford Edition. Cloth, lettered, 18s.; full morocco, elegant, 32s.

IV.—In Six Vols. foolscap octavo, cloth, uniform with the Cabinet Edition of the Novels, 12 Engravings after TURNER, and Fac-simile. In sets, cloth, lettered, 24s.

V.—In Twelve Vols. foolscap octavo, cloth, uniform with the Novels, Author's Favourite Edition. With the Author's last Introductions, Notes by the Editor, and 24 Engravings, all from TURNER'S designs. In sets, cloth, lettered, £1:16s.

THE LADY OF THE LAKE.—New Illustrated Edition. Including all his Latest Copyright Notes, Various Readings, and Additions. Exquisitely Illustrated by BIRKET FOSTER and JOHN GILBERT, uniform with the Illustrated Editions of Thomson, Goldsmith, and Longfellow's Poems, forming a beautiful and appropriate Gift-Book. The Illustrations of the Scenery are from Sketches drawn on the spot by Mr. FOSTER expressly for this Work, and comprise all the principal places alluded to in the Poem. New Edition, with additional Engravings. Extra cloth, gilt edges, 18s.; morocco, elegant or antique, 25s.

LAY OF THE LAST MINSTREL. New Illustrated Edition, uniform with the Lady of the Lake, with one hundred Illustrations on Wood, by BIRKET FOSTER and JOHN GILBERT. Printed from Sir Walter Scott's interleaved copy of 1831, with all his latest Corrections on the Text of the Poem, and Additions to the Notes. The Illustrations of Scenery are from Sketches drawn on the spot this Summer by Mr. FOSTER, expressly for this Work, and comprise all the principal places alluded to in the Poem. Extra cloth, gilt edges, price 18s.; morocco, elegant or antique, 25s.

In the Press, uniform with the above,

MARMION, A TALE OF FLODDEN FIELD. In six Cantos, with all the latest alterations in the Text of the Introduction, and of the Poem itself, as well as various additions to the Author's Notes. Printed from the Author's interleaved Copy, as finally revised by him in the Summer of 1831.

SIR WALTER SCOTT'S WRITINGS AND LIFE—*Continued.*

PROSE WORKS. Two sets as follows:—

I.—In Twenty-eight Volumes, uniform with the Author's Favourite Edition of the Novels, with 56 Engravings from TURNER; Portraits and Maps. In sets, cloth, lettered, £4:4s.

II.—In Three Vols. royal 8vo, uniform with the People's Edition of the Novels. Cloth, lettered, £1:6s.

Tales of a Grandfather.

I.—Numerous Illustrations, 3 vols. cloth, 12s., extra, gilt edges, 15s.

II.—In One Vol. royal 8vo, uniform with the Novels, People's Edition, cloth, lettered, 6s.

THE SAME, large paper, with 11 Engravings after TURNER, uniform with the Novels, Abbotsford Edition, cloth, lettered, 10s. 6d.

III.—(HISTORY OF FRANCE). By Sir WALTER SCOTT. Numerous Illustrations, cloth, 4s., extra, gilt edges, 5s.

Life of Napoleon Bonaparte.

I.—In Five Vols. Foolscap 8vo, with Maps, Portraits, and 9 Engravings after TURNER, uniform with the Cabinet Edition of the Novels, in 50 Vols. In sets, cloth, lettered, 20s.

II.—In One Vol. royal 8vo, uniform with the People's Edition of the Novels. Cloth, lettered, 10s.

THE SAME, large paper, with 14 Engravings after TURNER and others, uniform with the Novels, Abbotsford Edition. Cloth, lettered, 18s.

History of Scotland—School Edition. In Two Vols. crown 8vo, with Coloured Map. Bound and lettered, 10s.

LIFE OF SIR WALTER SCOTT. By J. G. LOCKHART, Esq.

I.—New Edition, in One Vol. 12 Engravings, cloth, 7s. 6d.; extra, gilt edges, 8s. 6d.

II.—In One Vol. royal 8vo, with Portrait and Fac-simile, uniform with the People's Edition of the Novels. Cloth, lettered, 10s.

THE SAME, with 11 Engravings from TURNER and others, uniform with the Novels, Abbotsford Edition. Cloth, lettered, 18s.

III.—In Ten Vols. foolscap 8vo, uniform with the Author's Favourite Edition of the Novels, with 20 Engravings on Steel, and Fac-simile. In sets, cloth, lettered, £1:10s.

Beauties of Sir Walter Scott.—A Selection from his Writings. Two Engravings, cloth, gilt edges, 5s.; extra, gilt sides and edges, 6s.

Readings for the Young, from the Works of Sir Walter Scott—Numerous Illustrations, 3 vols. in one, cloth, gilt edges, 7s.; separate vols. 2s. 6d.





BOUND BY
JOHN CRAY

